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of heart in the direction of public affairs. It is because of this recognition that he is disposed to applaud in particular the three Labour Ministers, Mr. MacDonald, Mr. Snowden, and Mr. Thomas, for what he regards as their outstanding courage in confronting an altogether abnormal situation, and determining at the risk of their political careers to make a gesture without which it is quite possible that a proper solution could not be found.

So far the National Government has existed purely on faith in its good intentions. There can be no real test until Parliament meets and the new Ministers disclose their plans for meeting the gravest emergency that the nation has had to face in peace time for 100 years. Still, the fact that they are buoyed up at the start by an overwhelming measure of goodwill among the nation at large gives them an opportunity for swift and decisive action which they must not be allowed to fritter away. Their immediate task is to balance the Budget, and it cannot be too often insisted that the only sure instrument to that end is the enforcement of economies in every branch of public expenditure. There are already suggestions that only a part of the expected deficit will be met by economies and that the balance will be made up by the imposition of more taxation. This is utterly wrong in principle. Sound finance calls for economy first, last, and all the time. Heavier taxation will not help British credit abroad or promote the revival of British trade at home. In any event, such economies as the Government are able to recommend in the next week or two can only be regarded as a first instalment. The canker of excessive spending has eaten so far into the heart of virtually every public authority in this country that a prolonged series of operations will be necessary before the evil can be finally rooted out. If that result is to be achieved and the nation restored to its former prosperity, many loose doctrines popularly cherished in recent years will have to be forgone. There has been a fundamental change in that respect in the acknowledged conversion of many among the leading politicians. The nation seems willing and even eager to learn from their example, but there will be no permanent solution until this change of heart is deeply rooted among all classes.

The business man's part in these high affairs can hardly be in doubt. Public extravagance is not a conspiracy on the part of bureaucrats or politicians so much as a habit with the men and women who by the exercise of the franchise have the final word in the framing of national policy. What was once regarded as the vice of running to Whitehall to ask for one favour after another has been elevated in the last quarter of a century to the status of a principle. Business men who closely scrutinise their actions and those of their fellows must recognise that this habit of expecting something for nothing from the State is not confined to the classes that profit by the social services.

The Business Man's Part

THE formation of the National Government has had a steady influence in many directions. Its cordial reception abroad has been specially notable, as the restoration of British credit is in the long run dependent on international confidence in the integrity of the pound sterling. No less reassuring has been the very obvious feeling of relief with which the announcement of the new Ministry has been greeted at home. It is important, however, to see the present position in its proper perspective.

The nation is not so much relieved by the substitution of one body of politicians for another at the head of its affairs, as by its grasp of the outstanding fact that for the first time during this century a Government stands forth pledged to public economy as its first and indeed its only task. The business man is too shrewd to join in such party rejoicings as there have been over the downfall of the purely Labour Government. He knows quite well that so far as the actual piling up of new Government expenditure is concerned, the Labour Party only followed the example of the older parties in the State. A mere change in party grouping in the present Parliament would not of itself have given him the confidence he needs. What makes the crisis of 1931 important in his eyes is his detection of a change

Chambers of Commerce and Trade Associations are not exempt, and there will be no new orientation in public life until all feel in their bones that private affairs can be provided for in no other way than by private individuals. That is the true meaning of economy in public affairs. The only sound rule, and the logical outcome of the present distress, is that there should be no more Government assistance. Admittedly the change cannot be effected in a day, but the business community can make a beginning by setting a good example. It is not called upon for any real sacrifice because it sees by now the utter worthlessness of public assistance. If business men cheerfully accept the closing of the host of Government offices and bureaucratic jobs invented on the excuse of helping trade, it will be easier to liquidate redundant social services and other questionable departments which cannot endure if business is to revive. A good deal has been said about equality of sacrifice since the financial crisis arose, but no form of it is more pertinent or fundamental than this. There can never be national economy in the true sense until it is accepted as an immutable principle that Government action can never stimulate trade, increase wealth, and afford more employment.

Italy's Chemical Industry

In the new report issued by the Department of Overseas Trade on the Economic Conditions in Italy, the chemical industries of the country, both export and import, come in for only a brief notice. On the manufacturing side, Italian chemical products comprise such a variety of articles that it is difficult to gauge their exact situation, but broadly speaking it is considered that there was a decrease in movement during 1930 of between 10 and 15 per cent. as compared to the previous year, but that on the whole conditions were better than in 1929. In those branches where a depreciation took place it was not very marked, with a few notable exceptions. Industries that had agriculture as their basis showed a contraction of between 35 and 40 per cent., particularly such branches as citric and tartaric acid, alcohol, tanning extracts, seed oils, refined and sulphur olive oils. It is noted that in the branches of chemical fertilisers, which during the last few years had given signs of considerable progress, conditions were especially bad owing to decreased consumption, due to agricultural depression. Although the production of superphosphates exceeded that of the previous year, the index of production, which for the first five months was over 100, declined progressively during the last five months to 79.8 in November and to 80.9 in December. Conditions in copper sulphate were even worse, as from a production index figure of 142.2 in January, it had gone down almost to zero in August, but it revived again by December when the index reached 102.

On the import side the total values of inorganic chemicals imported during the three years 1930, 1929 and 1928, were respectively 138 million, 139 million and 148 million lire, while values of organic chemicals were 77 million, 101 million and 97 million lire. These imports cover an immense variety of products mostly imported in small quantities, due principally to the increasing self-sufficiency of national production. Among inorganic chemicals copper sulphate is said to

form the most important single item and is almost entirely monopolised by British importers. Other items are nitric acid, caustic potash, potassium nitrate, various sulphates of aluminium, manganese, sodium, etc.

Of pharmaceutical products and proprietary articles the total imports were valued at 61 million lire in 1930, against 62 million in 1929 and 60 million in 1928. It is added that pharmaceutical chemicals and proprietary articles of British origin are unable to compete in price with similar lines produced in Italy, but owing to the high reputation for quality and accurate preparation they continue to maintain the preference they have always enjoyed in the past with members of the chemical profession and the public generally.

A "Cosach" Inquiry

A REPORT from New York states that the Chilean Government have decided on a complete investigation into the activities of Cosach, the national combine of nitrate companies that was formed some time ago with a capital of £75,000,000. The Government, it is stated, will in particular investigate certain suggestions of pressure brought to bear upon individual companies to induce them to enter the combine and the charges made for the use of patents. This is an additional factor in the nitrate situation and one that emerges at a most unfortunate moment. The competition of synthetic nitrogen has inevitably had a serious effect on the natural nitrate industry, and it was to meet this partly that the whole of the Chilean industry was reorganised and rationalised on a national basis. This, of course, is Chile's chief industry, and the country has depended on it for many years past. In former years it yielded a large revenue in the form of export tax. It seems clear that the creation of Cosach has not yet solved the difficulties of the nitrate industry, and it is unfortunate that there should be any internal dissension in Chile itself, at a time when financial conditions all over the world are sufficiently serious. One must not, of course, attach too much importance to one report.

Particulars are now published of the agreement between the Belgian and German nitrogen producers for the reduction of Belgian production to 25 per cent. of capacity. The Belgian producers also agree to abstain from exporting nitrogen in competition with the German industry. It is stated that German producers will pay cash compensation for these advantages.

Books Received

LABORATORY MANUAL OF ORGANIC CHEMISTRY. By H. L. Fisher. London : Chapman and Hall, Ltd. Pp. 368. 13s. 6d.
HYDROGENATION OF ORGANIC SUBSTANCES. By Carleton Ellis. London : George Routledge and Sons, Ltd. Pp. 986. 63s.
ECONOMIC CONDITIONS IN ITALY, JUNE, 1931. By E. H. Mulock. London : H.M. Stationery Office. Pp. 148. 4s.

The Calendar

Sept. 6-	International Association for the Testing of Materials: First Congress.	Zürich.
12		
8-9	Ceramic Society (Building Materials Section) : Autumn Meeting.	Leicester.
14-15	Institute of Metals: Annual Autumn Meeting.	Zürich.
17	Institute of Fuel: Visit to works of Shell-Mex Co. at Shell Haven.	London.

A Bookman's Column

THIS journal does not often give space to the reviewing of fiction, for the simple reason that fiction so seldom deals with matters of commerce or with the business life. We are creatures of habit; some things are done, others are not; and while we devote most of our thoughts and time and energy to the processes of earning a living, our reading leisure must, it seems, be devoted to the contemplation of the doings of those who never earn a living, but exhaust their existence in ways which ordinary people eschew. In *Private Enterprise* (Hodder and Stoughton, 7s. 6d.) Miss Lettice Cooper offers us welcome relief from this routine and gives us a story in which the head of a business and a family will find a familiar interest. John Ormerod is the proprietor of an engineering works in Yorkshire, founded by his father, and he also owns a subsidiary chemical concern marketing a road-making material. We are introduced to him at a period of life that fiction as a rule ignores, struggling with human problems of which the orthodox novelist knows little and cares less.

Comfortably established in a big family house, the business a success, and the family grouped around it and him, he meets the war and the post-war slump. A modern combine beats him at the roadmaking game, for with characteristic Yorkshire independence he declines to be absorbed. His eldest son and right-hand man marries, and we follow the very natural, though unadmitted, contest between the father and the wife for the soul of the boy. The wife, of course, wins, and takes him off to chicken farming and ruin, leaving the old man to carry on. Miss Cooper has caught that curious mixture of business and family, which, although fiction has yet to discover it, is the commonest thing in human experience. The subordination of the family to the business because the family interest is supreme is the day by day paradox of most of the practical men of affairs. This book gets very near to the business life, as near as any we remember, but it does no more than indicate what a storehouse of wealth for the novel writer is ready for the genius with a mind to exploit it.

* * *

ERNEST BENN, LTD., announce that they have taken over the publication of the world-famous *Blue Guides*, edited by Findlay Muirhead, and that twenty-one volumes are now available from Bouvierie House, varying in price from 5s. to 18s., according to their size. These volumes cover not only London, England, Wales, and Scotland, but many of the continental countries, and each, in addition to letterpress, is liberally supplied with maps and plans. Of a handy size for the pocket, the matter condensed into the most convenient form, practical information combined with local history and legend, these guides have long been known to supply exactly what the intelligent tourist desires, and the new facilities for acquiring them now offered by Ernest Benn, Ltd., will no doubt result in a still wider circle of readers.

* * *

In *The Materials of Life*, by T. R. Parsons (G. Routledge and Sons, pp. 288, 10s. 6d.), the author sets out to give an account "that everybody shall be able to understand" of the materials of which living things are made and of the complex and fascinating changes that these materials undergo during life. It is, perhaps, too much to expect "everybody" to understand even a simple statement of the science of biochemistry, but the author has certainly done all that was possible to combine simplicity of language and explanation with scientific knowledge. The constitution, maintenance, and functions of the human body are described in a way that gives the non-expert reader a general grasp of the subject, and for those who, stimulated by this first dose of knowledge, desire to pursue the study further, a well-chosen list of more advanced books is given.

* * *

Patent Law for Chemists, Engineers, and Executives, by Fred H. Rhodes, Professor of Industrial Chemistry in Cornell University (McGraw Hill Publishing Co., pp. 207, 12s. 6d.), deals, as one might expect, mainly with patent law and procedure in the United States, but Article I, Section 8 on the Constitution of the United States was clearly based on the old English system of granting exclusive rights to authors and inventors, and the principles in both countries are the same with variations in detail. While, therefore, this work explains

the general principles of protection secured by Letters Patent, it also enables the English or other reader to see very clearly how the Patent system is worked in America. As a text-book on United States Patent law and procedure it is remarkably complete for a volume of moderate size.

* * *

VARIOUS useful tables for use in chemical and metallurgical spectrography have been published since the first edition of *Wavelength Tables for Spectrum Analysis* (Adam Hilger, Ltd.) was compiled, and the present time is opportune for the appearance of an up-to-date laboratory handbook containing all the necessary data for use in analysis by flame, arc and spark methods. The most recent interferometric measurements of standard wavelengths have been included, and the tables of persistent lines have been revised to the I.A. scale. Tables of such lines for arc spectra (by J. W. Ryde and H. G. Jenkins), and flame spectra (by Professor Lundegardh) are now reproduced with explanatory notes. For those wishing to study the subject more fully from the standpoint of modern physics the section on "The Various Types of Spectrum" (by Professor Andrade) and the complete table of ultimate lines by Dr. A. T. Williams (to which have been added spectroscopic information such as excitation potentials and temperature classification) will be of interest. The Appendix deals with the phenomena of the condensed spark discharge and the precautions necessary for its standardisation for quantitative analysis.

* * *

THE first Report of the Midland Coke Research Committee, which was formed at the instance of Professor R. V. Wheeler, of the Department of Fuel Technology, Sheffield University, has made its appearance in the form of *Coke for Blast Furnaces*, by R. A. Mott and R. V. Wheeler (Colliery Guardian Co., Ltd., pp. 260, price 25s. net). This book records the results of the work of a Committee which is composed mainly of representatives of the coke users and coke producers. It is based on large scale and laboratory tests made at coke-ovens and blast-furnaces and on research work carried out in the Department of Fuel Technology at Sheffield University. The authors have reported the results in such a manner as to show how the different properties required in a blast-furnace coke can be specified and how those properties are affected by selection and blending of the coal charge and by the conditions of coke making and coke handling. The scientific basis on which the subject has now been placed should enable the blast-furnace operator to specify the qualities he requires in his coke, and the coke manufacturer to conform to that specification, to their mutual benefit. The book should therefore appeal to all concerned with the production, sale and use of coke. The principal qualities of coke that appear to affect its behaviour in the blast furnace relate to its purity, its hardness, and its combustibility. Except, perhaps, for properties relating to purity the determination of the properties of coke involves the use of empirical tests, each detail of which requires to be carefully standardised. One of the first duties of the Committee has therefore been the standardisation of such tests. The properties of coke that have been suggested as of prime importance are its size and structure, its chemical analysis, its bulk, apparent and real density and porosity, its abrasion, its impact hardness and its reactivity with oxygen and carbon dioxide. Crushing strength of coke is not now regarded as of importance, for the maximum steady pressure to which coke is subjected in a blast furnace is only about 30 lb. per sq. in., a pressure well within the resistance of the weakest commercial cokes.

* * *

THE experimental study of inorganic chemistry as outlined in *Synthetic Inorganic Chemistry* by Arthur A. Blanchard and Joseph W. Bliean (Chapman and Hall, Ltd., pp. 352, price 15s. net) has been sufficiently well appreciated to call forth a fourth edition. Many minor changes have been made in the discussions, although the general plan of the book has remained unchanged. Nine entirely new preparations have been introduced which include some of the less common elements—cerium, titanium, selenium, molybdenum and tungsten. In all, 74 preparations are now detailed, with a very large number of minor experimental tests. The section of the Appendix upon atomic structure and the periodic classification of the elements has also been revised and extended.

Compressed Gases in Cylinders

Regulations for Transport by Road

NEW regulations governing the conveyance of compressed gases in cylinders came into force on September 1. (Gas Cylinders (Conveyance) Regulations, 1931, H.M. Stationery Office, price 2d. net). The principal points in these regulations, which cover air, argon, carbon monoxide, coal gas, hydrogen, methane, neon, nitrogen and oxygen are:—

1. No cylinder shall be used for the conveyance by road of any of the said gases in a compressed state unless (a) it is constructed in accordance with the specifications contained, and has complied with the tests described, in the schedule; (b) the conditions contained in the following regulations are complied with.

2. Cylinders shall be maintained in good condition, and the valves shall be securely closed so as to prevent leakage.

3. Cylinders shall be so conveyed as not to project beyond the sides or ends of the vehicle. Adequate means shall be taken to prevent cylinders falling off the vehicle.

4. Cylinders shall be legibly marked or labelled with the name of the gas, and the name and address of the person or firm by whom it was compressed.

5. The working or internal pressure in any cylinder shall not exceed 1,800 lb. to the square inch.

6. The valves of cylinders containing carbon monoxide, coal gas, hydrogen, or methane shall be protected against damage, either by the design of the cylinder or by the provision of a stout metal cap or metal cover, securely attached to the body of the cylinder. The metal cap or cover shall be so made that it is nowhere in actual contact with any part of the valve or valve body. Every valve cap or cover shall be provided with a vent of such size as to prevent any gas pressure inside the cap or cover. This regulation shall not come into force until after September 1, 1932.

Precautions with Empty Cylinders

7. The valves of cylinders containing carbon monoxide, coal gas, hydrogen, or methane, shall be provided with left-handed screw threads for the pipe or other connections. (Precautions should be taken to ensure that the valves of emptied cylinders are securely shut before the cylinders are loaded for conveyance. These precautions apply more especially when the cylinders have contained inflammable gases, and are conveyed in closed vehicles.)

8. Oil or similar lubricant shall not be used on any valves or other fittings of any cylinder.

9. Each cylinder shall, before being filled with gas, have been submitted by the gas compressing person or firm within the preceding two years to the hydraulic test specified in the schedule. Prior to any hydraulic test the cylinder shall be thoroughly cleaned and examined externally, and, so far as practicable, internally for surface defects, corrosion, and foreign matter. Where internal rust or foreign matter is observed, the cylinder, prior to the hydraulic test, shall be heated to a temperature not exceeding 300° C., and again cleaned and examined. Any cylinder which fails to pass the test shall not be conveyed by road when containing any compressed gas to which these regulations apply.

Identification Colours

10. Cylinders containing gases shall be painted with the following identification colours: Air, grey; Argon, blue; Carbon monoxide, red, with yellow band; Coal gas, red; Hydrogen, red; Methane, red; Neon, medium brown, with black band; Nitrogen, dark grey, with black band; Oxygen, black. The distinguishing colour band shall be painted round the neck of the cylinder close to the valve fitting. The requirements of this regulation will be met if the instructions contained in British Engineering Standards Association Specification, No. 349/1931, are followed. This regulation shall not come into force until after September 1, 1932.

Recovery of Sulphuric Acid in Benzol Refining

In refining benzol with sulphuric acid, German manufacturers have hitherto wasted practically all of the sulphuric acid with the resins dissolved in it. According to the United States Consul at Frankfort-on-Main, it is now reported that a new process is being tried in the Ruhr district which permits almost complete recovery of the acid.

Synthetic Petrol

Production by the Fischer and Tropsch Process

THE present position in the production of synthetic petrol by the Fischer and Tropsch process is outlined in a recent issue of *Brennstoff-Chemie*, reproducing a paper which Dr. G. F. Fischer read before the Kaiser Wilhelm Institute at Mulheim-Ruhr.

The process achieved during the last few years appears to mainly concern the discovery of highly active and stable catalysts, the provision of a cheap grade of initial gas, and the technical developments at the experimental plant of the Mulheim Institute. A plant has now been designed which is capable of producing 80 per cent. of the yields obtainable in the laboratory, but only the cheapest grades of gas can be considered as raw material. The maximum theoretical yield of petrol is 34.6 gram per cu. m. of gas (2.14 lb. per 1,000 cu. ft.) when using coke-oven gas, or 103 gram per cu. m. (6.25 lb. per 1,000 cu. ft.) when using a mixture of coke-oven and "mixed" gas. These yields are increased to 190 gram per cu. m. (11.9 lb. per 1,000 cu. ft.) when using a mixture of fractionated water gas.

Cost of Heat Consumed in Process

The cheapest mixture has been found to be one of coke-oven and blast-furnace gas. The amount of heat required per lb. of petrol increased with the degree of liquefaction. With a 100 per cent. yield the charges for heat consumed amount to slightly over 5 pfennigs per kg. (0.27d. per lb.) of petrol, whereas with a yield of 30 per cent. they amount to more than 8 pfennigs per kg. (0.43d. per lb.). It is absolutely necessary that the degree of liquefaction should be raised to 50 per cent. as otherwise the thermal efficiency will be bad. This degree of liquefaction is actually attainable with the contacts at present used. The most expensive proportion of the equipment is at present the contact apparatus. For a plant capable of dealing with a throughput of 10,000 cu. m. (353,165 cu. ft.) of gas per hour, the contact apparatus would cost 2,000,000 marks (£100,000). This apparatus would be capable of supplying 6,000 to 7,000 tons of high-grade petrol per annum.

The main points to be aimed at in any further progress are the supply of cheap gases and the reduction in the price of the contact apparatus. New methods are being followed in the contact process. Under certain circumstances it will be possible to carry out the petrol synthesis in a similar way to that adopted for solidifying fats. There are gas mixtures that can be produced from methane and are capable of yielding much more petrol and oil per cu. m. than the gas mixtures already referred to. There is every reason to think that the practical and research work which is being carried out in fuel chemistry will eventually lead to an early solution of this problem, which is of such vital importance to industry, seeing that the original theory has gone far beyond the laboratory research stage, and by large scale experiments has been brought much nearer to realisation on an industrial scale.

J. Schnurmann's Financial Affairs

Result of Adjourned Meeting

THE adjourned meeting of the creditors of J. Schnurmann, rubber and chemical merchants, Downham Mills, Chesnut Road, N.17, was held on August 28, at the Institute of Chartered Accountants, Moorgate Place, E.C., when Mr. S. F. Ward again presided. Mr. Ward said that the committee and the accountants had now looked very closely into the position since the first meeting (reported in THE CHEMICAL AGE, August 29, page 192), and the committee had agreed to make a recommendation to the general body of creditors, that the debtor should execute an absolute deed of assignment in favour of Mr. W. H. Cork, of W. H. Cork and Co., accountants, 19, Eastcheap, London, E.C., and Mr. A. T. Buckingham, of Lionel H. Lemon and Co., C.A., as joint trustees, for the benefit of the creditors, together with a committee of inspection. If that resolution was adopted, the business would be continued by the trustees, until a satisfactory offer was made for the estate, or the business sold as a going concern. After discussing the position, it was resolved that Mr. W. H. Cork and Mr. Buckingham should be appointed as joint trustees.

Filtration and Drying in One Operation

Outstanding Features of New Plant

HITHERTO there has been no plant on the English market for continuous filtering combined with drying. L. A. Mitchell Ltd., of 37, Peter Street, Manchester, however, have now installed a demonstration plant of this type at some works in the pottery district, where it is operating on pottery slip. This particular unit, known as the "Imperial" continuous rotary vacuum filter, is protected by patents in which the Maschinenfabrik Imperial G.m.b.H., of Meissen-in-Saxony, have sole manufacturing rights for Europe.

The chief features of this filter are that it has no scraper or knife for removing the filter cake, which is discharged by means of an endless belt consisting of parallel cords passing round the filter, and that the cake can be removed down to $\frac{1}{2}$ in. thick, which hitherto has been impossible with a scraper discharge. The material to be filtered is pumped by the slurry pump into the filter tank in larger quantities than the filter drum can handle. The resulting surplus is continually carried back to the reservoir, whereby a continuous motion is produced, and any precipitation of the material is prevented; but in special cases an agitator is provided. On its surface the drum carries a large number of flat filter boxes over which the filter cloth is laid, and the outer face of each filter cell is covered with a piece of woven wire made of a material which corresponds to the characteristics of the product to be filtered. Round the whole surface of the drum runs a rough filter cloth of a special make, upon which lies the real filter cloth of finest tissue, if necessary, even of silk, but for corrosive materials, these filter cloths can be made of woven metal, such as copper, bronze, or monel metal.

When the filter cake emerges above the level of the liquid it is uniformly compressed by the pressure belt, which, if necessary, is conducted over heated guide rolls, so as to avoid cracks and holes which might allow air to pass through. This pressure belt consists of thick felt. If the filter cake has to be washed, a light washing belt is used instead, the water which then runs through one or two washing grooves produces a thorough washing without any surplus water entering into the filter tank and spoiling the filter cake. The cake, which has thus been filtered and finally washed, then finds its way into the endless cord discharge belt. At the point where the vacuum is cut off this belt is conducted over guide rolls, which can be heated if necessary, and it is here taken off the filter drum and carries the filter cake, from $\frac{1}{2}$ in. up to 2 in. thick, to any desired spot for drying and further treatment, no other special conveying devices being necessary. If a finished product containing very little water is desired, a drying drum is as a rule arranged directly after the filter, and the cord belt with the compressed filter cake is conducted round the drum, which is heated by waste gases, steam, or direct firing, and thus completely dries the filter cake. In order to take the filter cake off the discharge belt after the drying, or, if there is no drying, after the filtration, the discharge belt is conducted over a roll of very small diameter, so that the filter springs off the belt in consequence of its sharp curvature. Behind this roll there is a combing device, the teeth of which remove any remaining pieces of filter cake from between the cords.

Cellophane Manufacture in Canada

CONSTRUCTION of the factory to be erected by Canadian Industries, Ltd., at Three Rivers, Quebec, for the manufacture of cellophane, is expected to be begun in August, and production is likely to be in progress next spring. The plant will cost approximately £300,000. The factory will turn out sheets of cellophane 48 inches in width. The manufacture of cellophane will be new to Canada, this material being at present imported in large quantities for use as a wrapping in the merchandising of cigars, foodstuffs and other commodities. The principal raw material used is woodpulp, large quantities of which are already available in Canada. Allied with Canadian Industries, Ltd., in this new enterprise are Imperial Chemical Industries, Ltd., and the Du Pont de Nemours Co., the American manufacturers of cellophane. It is understood that Canadian Industries, Ltd., has obtained the rights to use patented processes of manufacture to produce a quality of cellophane which is waterproof.

United States Fertiliser Imports

Domestic Production Gradually Reducing Importation

FERTILISER materials represent the principal tonnage item in the United States import trade in chemicals and allied products. The average annual receipts during the past six years have approximated 2,000,000 tons. The dependence of agriculture upon foreign countries for a large share of the fertiliser material requirements led to intensive investigations of the domestic resources during the World War and subsequent years and resulted in the development of domestic potash supplies, together with the establishment of synthetic ammonia plants. The new suppliers of basic materials have checked importations of foreign materials, notwithstanding the increased trend in fertiliser consumption that was evident up to and including 1930 when sales reached slightly over 8,000,000 tons.

Nitrogenous Materials Imported

According to a recent report by E. A. Kiefer, of the Chemical Division of the U.S. Department of Commerce, nitrogenous materials as a group have consistently accounted for over 50 per cent. of the total import tonnage in fertiliser materials during the past decade. Nitrate of soda always has been the major item in this group. The imports of 568,000 tons in 1930 represent a low figure for recent years and were exactly one-half of the post-war peak attained in 1925. Imports of ammonium-sulphate-nitrate from Germany, where this commodity was developed first, were of considerable importance in 1928, but have declined materially. Ammonium sulphate importations approximated 34,000 tons in 1930. This item is of much greater importance in United States exports. Calcium cyanamide is not produced in the United States, and practically all of the imports, in recent years, represent material obtained from the producing plant in Canada, which is the only commercial cyanamide plant in America. Calcium nitrate is another commodity which is not produced by domestic manufacturers. Imports have shown consistent gains, but the total of less than 44,000 tons in 1930 is relatively small compared with the amounts employed by agriculturists in many European countries. Shipments described as "guano" cover whale by-products in addition to material collected on so-called guano islands and in caves. While included with the nitrogenous group, most guanos contain appreciable quantities of phosphoric acid and some potash.

Increasing Imports of Potassium Chloride

Total value of fertiliser imports has fluctuated materially in the past six years. Receipts in 1925 were valued at \$78,000,000; in 1930, \$59,000,000. While it is known that substantial quantities of certain fertiliser materials enter industrial channels no exact data are available concerning the amounts thus employed. Potash salts are obtained almost exclusively from Germany and France. Spain has supplied small quantities in recent years. The outstanding development in the potash-import trade in the past decade has been the growth in the receipts of high-analysis salts. The imports of almost 275,000 tons of potassium chloride in 1930 were the largest ever recorded. Domestic deposits of phosphate rock represent the foundation of the American fertiliser industry. The relatively small importations of phosphatic materials totalling 96,000 tons in 1930, are of three principal types: Bone meal, assembled from many foreign countries; phosphate rock, from Pacific islands into Hawaii; and some superphosphate imported into Porto Rico from Cuba.

Sugar Production in Mauritius

ACCORDING to the Annual Report of the Department of Agriculture (Mauritius) for the year 1929 (1931), the Colony's production of sugar was 238,035 metric tons. Owing to the altered conditions of the sugar market, manufacturers found it more advantageous to produce a larger proportion of rags than heretofore. The total tonnage of cane ground approximated to 2,195,400, giving a mean extraction of sugar of 10.48 per cent. on cane. Five experimental stations have been established in various localities of the island with a view to determining the type of cane varieties, both imported or locally produced, best suited for local conditions.

Corrosion of Iron and Steel

Lead as a Protecting Medium

IRON and steel work is frequently given several coats of paint without taking steps to ensure that it has been efficiently cleaned, in which case corrosion proceeds beneath the coatings, until such time as the corrosion detaches the paint film and reveals the unsatisfactory condition of the foundation metal. Modern experience undoubtedly points to the necessity of correctly preparing the foundation metal before applying preservation coatings. There is no excuse for inefficient cleaning as the use of mechanically-operated wire brushes, scalers and sandblasting will ensure a perfectly clean surface. It is, however, equally necessary to apply to this surface a protective coat that will exclude and resist the elements that cause corrosion. This coating material must have long life characteristics, and therefore, form a complete impervious film with tenacious adherent powers. It is now possible to commercially produce such a material from a metal alloy containing a high percentage of lead, known by the trade name of "Nust." Owing to the subsequent amalgamation of the extremely fine particles obtained from this alloy, this material forms a complete impervious coating, filling the pores of the foundation metal in a manner that increases its adhesion through ageing, and moreover, it has the added advantages of simple application, which does not require specialised skill.

"Nust" is applied by means of stiff bristled brushes, whereby the air existing in the pores of the foundation metal is displaced, thus giving intimate metallic contact, and eliminating a very common source of corrosion due to trapped air. The corrosion-resisting powers of this material are so high that only one coat is necessary to ensure a longer period of preservation than has been possible in the past. It is supplied by the Nor-Rust Liquid Lead Co., Ltd., of Iddesleigh House, Caxton Street, London, S.W.1.

Sir John Cass Technical Institute

THE new session of the Sir John Cass Technical Institute, Jewry Street, Aldgate, E.C.3, which extends over about 36 weeks, will begin on Monday, September 21, and students will be enrolled during the preceding week. The Institute provides instruction in pure and applied mathematics, physics, chemistry, botany, zoology, bio-chemistry of fermentation (including malting and brewing), petroleum technology, fuel technology (including coal carbonisation and gas manufacture), metallurgy, assaying, geology, modern languages, arts and crafts, and tailoring. The science courses are arranged to meet the requirements of those engaged in chemical, metallurgical, electrical, petroleum and fermentation industries, and are held from 6 to 10 p.m.

Full facilities are provided in well-equipped laboratories for special investigations and research. The instruction in experimental science also provides systematic courses for the examinations of London University, the Institute of Chemistry, and the Institute of Brewing. The principal or heads of departments will be pleased to advise intending students at the commencement of the session on the course they should undertake.

Poisoning Dangers from Chlor-ortho-toluidine

In the Annual Report of the Chief Inspector of Factories and Workshops for the Year, 1930, the number of cases grouped under the heading of aniline poisoning remain practically the same as in 1929, but would have been very much less had it not been for a series of 10 cases, the first recorded, following the inhalation of vapour from 5-chlor-ortho-toluidine. Investigation of these cases showed that the day after commencing the process slight headache, drowsiness, and nasal irritation were noticed by a few of the men. Later, serious effects were observed which caused 10 men out of 13 to cease work, suffering from strangury followed by haematuria. All these workers had come into contact with the fumes of 5-chlor-ortho-toluidine emitted from the paste when dried in a vacuum oven, there being at the time an abnormally high outside temperature. The remaining cases are attributed to the following processes: —making intermediates (D.N.B., D.N.T., T.N.T.), 8; aniline colours, etc., 3; aniline black dyeing, 2; handling of aniline residue, 1.

Cosach Bond Issue to Guggenheim Bros. Protest Meeting of Lautaro Shareholders

A LETTER has been addressed by Gilbert Samuel and Co., solicitors, to the Preference shareholders of the Lautaro Nitrate Co., inviting them, at the request of a number of holders of the shares, to a meeting to be held on September 11 at Winchester House, E.C.2, at 12 noon.

"The object of this meeting," states the letter, "is to consider the legality of the issue to Guggenheim Brothers of seven per cent. bonds to the nominal value of £5,577,724 of the Compania de Salitre de Chile (Cosach) and the effect of such issue on the rights and interests of Preference shareholders of the Lautaro Nitrate Co., Ltd. These bonds are stated to have been issued to Guggenheim Brothers in satisfaction of certain obligations to them of the Anglo-Chilean Consolidated Nitrate Corporation. The bonds are secured, both as to capital and interest, by a levy of 60 pesos (£1 10s.), imposed under a decree promulgated on February 24, 1931, by the late Chilean Minister of Finance, on every ton of nitrate exported. The meeting will be asked, if thought fit, to pass a resolution of protest to the Chilean Government."

Award of Schoellkopf Gold Medal

MR. FRANK J. TONE, president of the Carborundum Co., of Niagara Falls, has been chosen as the first winner of the Jacob F. Schoellkopf Gold Medal, to be awarded by the Western New York Section of the American Chemical Society. His outstanding contributions to science and industry include work with the late F. A. J. Fitzgerald, on the properties and commercial applications of silicon carbide, the production of pure silicon and the industrial application of electro-chemistry. In 1895, Mr. Tone became associated with Mr. Edward G. Acheson in the development of carborundum and artificial graphite as works manager of the Carborundum Co. Since 1899 he has directed the company's activities in the electric furnace production of abrasives and refractories, and the manufacture of grinding materials. He originated the first commercial process for the reproduction of "metallic" silicon, now widely used in making non-ageing transformer steel, aluminium-silicon alloys as a reducing agent in producing low carbon ferro-alloys, and in the generation of hydrogen for dirigibles. Mr. Tone was also the discoverer of silicon monoxide and fibrous silicon oxy-carbide.

Rubber Covered Wire Screens

IN view of the remarkable abrasive resisting qualities of rubber when suitably compounded, Macinlop, Ltd., of Cambridge Street, Manchester, have recently introduced rubber-covered wire screen cloths. The rubber covering of these cloths has only been made possible by the use of a special patented process. The rubber covering is such that the steel wire, of which the cloths are constructed, is totally enclosed without any seam or joint in the rubber whatever, thus effecting complete protection. By this means the strength is not impaired by wear, as this is taken entirely by the rubber covering. The steel wire is only required to give the necessary strength, and is in no way subjected to the severe abrasion. Screens rubber covered in this manner are also admirably suitable for use in chemical works, as the steel wire is protected from the acid fumes or acid by the specially compounded rubber. By the substitution of these screens, heavy maintenance costs are reduced to an absolute minimum, as frequent replacements associated with interruption of output are unnecessary. Further particulars will be found in a brochure on Macinlop anti-corrosion rubber, issued by the manufacturers.

Japanese Market for Ultramarine Blue

JAPAN, with its extensive textile, paper, and paint industries, offers a good market for ultramarine blue; laundries, however, are a relatively unimportant consumer. The production of ultramarine blue in Japan has been confined to one factory at Osaka, which suspended operations during 1930. Requirements of the market are supplied by imports, Kobe and Yokohama being the principal ports of entry. During 1930 the imports totalled 333,400 lb., valued at approximately £9,400, of which 143,776 lb. came from Germany, 75,954 lb. from Belgium, 42,555 lb. from France, 33,204 lb. from Great Britain, and 31,410 lb. from the United States.

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From Week to Week

LORD KYLSANT has resigned from the board of London and Thames Haven Oil Wharves, Ltd.

MR. WILLIAM H. NICHOLS, late head of the Allied Chemical and Dye Corporation, is to be awarded the New York Medal of the American Chemical Society.

MR. F. E. POWELL, who has recently accepted the chairmanship of the American Sugar Commission at The Hague, has tendered his resignation as a director from the Board.

A NEW COPPER ALUMINIUM ALLOY, which has the appearance of gold, is claimed to have been produced in Sheffield. The new metal is stainless and washable, and the cost is said to be about equal to that of nickel silver.

A FIRE IN THE STOREROOM of the Mond Nickel Co.'s precious metal refinery at North Acton was discovered by a night watchman early on Thursday, August 27. A quantity of material was damaged, but no precious metals were involved. The fire was extinguished in about an hour.

DR. FIRMAN E. BEAR, director of agricultural research, American Cyanamid Co., has returned to the United States from a visit to Europe where he has been making a study of the fertilizer situation, with particular reference to nitrogen, in England, Holland, Belgium, Poland, Czechoslovakia, Germany, Italy and France.

DAMAGE ESTIMATED AT SEVERAL THOUSAND POUNDS was done by a fire at the Dumbreck By-Product Works, Kilsyth, Stirlingshire, on Thursday, August 27. Buildings with machinery for the treatment of coal were destroyed. Miners at an adjoining colliery had to suspend work owing to the smoke resulting from several hundred tons of coal becoming involved in the fire.

MR. EDWARD DE MUSCHAMP, of Brotherton, Westgate-in-Weardale, an analytical chemist who served his apprenticeship with Pease and Partners, Ltd., at their Bankfoot Chemical Works, Crook, has been appointed by a firm in Malay to carry out important research work on their behalf. Mr. Muschamp has had a wide experience in research work in connection with coal washing and coke making.

A REPORT ON ECONOMIC AND TRADE CONDITIONS in Latvia, recently issued by the Department of Overseas Trade, 35, Old Queen Street, London, S.W.1 (Ref. C. 3.625), shows chemicals, minerals and oils as constituting 15·4 per cent. of the total imports during 1930. During the year there was a considerable decrease in the production of fertilisers, and the manufacture of linoleum was entirely suspended.

BRITISH HOME CONSUMPTION of rayon yarn (as shown by the excise returns) was more than maintained in the twelve months ended July, 1931, the actual total being 42,431,000 lb. against 42,025,000 lb. These figures take no account of the reduced weight of yarn exported in the form of fabrics, etc., and it may therefore be assumed that the actual retail sale of rayon in this country has increased by a substantial figure.

MR. JOHN H. CHESTER, of Sheffield, who is engaged with the Metropolitan-Vickers Electrical Co., Ltd., Manchester, in research work on refractory materials for use in the induction furnace, proposes to study the influence of the bond on the properties of magnesite bricks, has been awarded a Robert Blair Fellowship, tenable during the Session 1931-32. This fellowship carries a grant of £450, and is awarded by the London County Council.

ACCORDING TO A MESSAGE from New York, the Chilean Government has ordered a complete investigation into the activities of Cosach (Compagnia de Salitre de Chile). The Government will, in particular, investigate the charges of improper pressure brought against independent companies in order to force them to enter the £75,000,000 combine. Inquiry will also be made into the allegation of excessive charges for the use of patents.

A GROUP OF SHAREHOLDERS of the Lautaro Nitrate Co. are calling for a revision of the agreement between the Guggenheim Brothers and Cosach, contending that it affects the Lautaro Co. unfavourably. The new Lautaro committee is said to be representative of about 500,000 shares in Great Britain, and other shareholders are to be invited to attend meetings to discuss the question with a view to representations being made to the Chilean Government.

IT IS REPORTED that a match factory is to be established at Johannesburg (South Africa), the output being 12,500 boxes per hour.

FOLLOWING AN ACCIDENT at the works of Synthetic Ammonia and Nitrates, Billingham, James Devlin (42), of Billingham, was admitted to the Stockton and Thornaby Hospital on Wednesday, September 2, with concussion.

EXPORTS OF BUTANOL from the United States during the first half of 1931 amounting to 721,968 lb., valued at \$85,685, went to fourteen countries, the principal ones being Canada, 355,872 lb., \$44,140; United Kingdom, 180,569 lb., \$20,811; and Japan, 150,803 lb., \$17,015.

A BODY RECOVERED FROM THE RIVER DEE at Chester, on Sunday, August 30, has been identified as that of Mr. James Morris Hurst, aged 57, who was associated with Bradbury and Hirsch, chemical merchants of Liverpool. Mr. Hurst has been missing from his home for a week.

MR. M. L. DANIELS, managing director of the United Drug Co., Ltd., Waterway Street, Nottingham, has left Liverpool by the White Star liner *Ceramic* on a visit to South Africa and Rhodesia. Mr. Daniels has been invited to speak at gatherings of business men in Cape Town, Johannesburg and Bulawayo.

IMPORTS OF CARBON BISULPHIDE into Australia dropped sharply from 22,528 lb., valued at £309 in 1928-29, to 1,206 lb., valued at £29 in 1929-30, while carbon tetrachloride increased in quantity with 140,180 lb., valued at £4,387 in the 1928-29 period, compared with 183,948 lb. at the decreased value of £3,590 in 1929-30.

AN AGREEMENT made between the Belgian and German nitrogen producers provides for the reduction of Belgian production to 25 per cent. of capacity. The Belgian producers also agree to abstain from exports to eliminate competition with the German industry. German producers will pay cash compensation for these advantages.

ORDERS valued at £20,000 have been placed by the Soviet Government with the steel manufacturers, Thomas Firth and John Brown, Ltd., of Sheffield. This material is required for the making of turbine blades. Other inquiries are being dealt with for special alloy steels, which, it is believed, will result in further orders being placed with Sheffield firms.

THE NINETEENTH ANNUAL MEETING of the Indian Science Congress will be held in Bangalore (India), January 2-8, 1932, under the presidency of Rai Bahadur Lala Shiv Ram Kashyap. Professor P. R. Ray has been elected president of the Chemistry Section. Further information can be obtained from the General Secretary, 35, Ballygunge Circular Road, Calcutta.

DURING THE FIRST HALF of the current year dyestuff exports in Germany totalled £6,425,000, being £960,000 less than in the corresponding period of last year. At present Great Britain takes only 10 per cent. of the amount of dyes which she used to import from Germany before the war, but in recent months the sale possibilities on the British markets are stated to have improved.

ALCOHOL may be the means of extricating the Roumanian Government from its economic difficulties caused by the present extremely low prices for grain and petroleum products. A law providing for the manufacture and sale of alcohol as a State monopoly is to be presented to the Roumanian Parliament in the early autumn, and it is believed that this monopoly will become the basis of a new foreign loan.

RECENT WILLS include:—Thomas Vipond Barker, D.Sc., of Woodstock Road, Oxford, the distinguished mineralogist (net personality £5,542), £5,815; William Henry Butler, of The Priory, Wessbury-on-Trym, Gloucestershire, formerly head of William Butler and Co., chemical manufacturers, Bristol, £127,916 (net personality £112,114). The late Lord Trent, of Nottingham (formerly Sir Jesse Boot), founder of Boots' Pure Drug Co., Ltd., left estate in England of the gross value of £222,317, with net personality £194,755.

Obituary

MR. BERNARD WEBB, of Bourne, for some years a director of Mays Chemical Manure Co.

DR. ADAM CAMERON, Professor of Chemistry, University of New Brunswick, Canada, aged 55 years, died at Fredericton, New Brunswick, August 28.

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

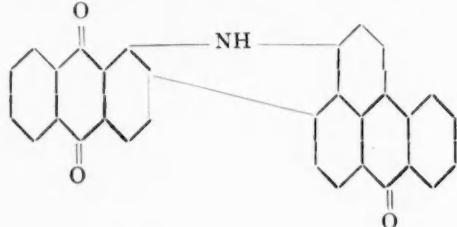
Abstracts of Accepted Specifications

348,661. DYES. E. G. Beckett, P. F. Bangham, J. Thomas, and Scottish Dyes, Ltd., Earl's Road, Grangemouth. Application date, November 12, 1929.

Anthraquinone derivatives, probably anthraquinone-guanidines, which are dyestuffs for wool, acetate silk, etc., are obtained by treating with dicyandiamide the hydrohalides of di- and poly-aminoanthraquinones or of substituted amino-anthraquinones having at least one free amino group. Thus the products from the 1:4-diamino-, 1-amino-4-oxy-, and 1:3:8-triamino-2-methyl-derivatives of anthraquinone dye acetate silk yellow, red, and brown shades respectively. The 1:4-diamino-2:3-dichlor-, 1:5-diamino-, triamino-, and tetramino-anthraquinones are also specified as starting materials. The product from 1:4-diaminoanthraquinone may be benzoylated, yielding a bright yellow vat dye for cotton.

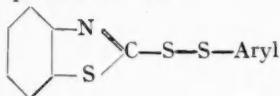
348,671. DYES. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, December 18, 1929.

The benzanthrone derivative of the formula,



obtainable as described in Specification 24604⁹⁸, is halogenated or, alternatively, the condensation product of a halogen BzI-brombenzanthrone with 1-aminoanthraquinone is alkali-condensed under mild conditions, and the halogenated products are subjected to further condensation with nitrogenous organic compounds containing a replaceable hydrogen atom attached to nitrogen. The products so obtained may be still further condensed, if desired, by means of acid condensing agents. Numerous examples of the production of vat dyes by the process are given.

348,682. THIAZOLE DERIVATIVES. A. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, February 12, 1930. Products of the probable formula



(Aryl representing a benzene or naphthalene nucleus, and the aromatic nuclei being substituted, if desired, by halogen, nitro, alkyl, or alkoxy groups), which are vulcanisation accelerators for natural or synthetic rubber, are obtained by reaction of a mercaptobenzothiazole with an aryl sulphur chloride or bromide in presence of an inert solvent such as tetrachloromethane, benzene, toluene, or ligroin. The aryl sulphur chlorides and bromides are obtained by chlorination and bromination of the corresponding diarylsulphides. Numerous examples are given.

348,776. SODIUM HYDROSULPHITE; ZINC OXIDE. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, March 17, 1930.

Sodium hydrosulphite and zinc oxide are obtained by a process in which a solution of zinc hydrosulphite is first produced by adding to the aqueous reaction mixture of equivalent quantities of zinc dust and sulphur dioxide at least 1 per cent. (by weight of the zinc dust employed) of zinc oxide, zinc dust, or zinc carbonate, and this solution is then filtered and treated with an excess of caustic soda or sodium carbonate;

in the latter case the zinc carbonate formed is heated to obtain the oxide.

348,787. GLYCEROL; ALKALI SULPHITES. Imperial Chemical Industries, Ltd., Millbank, London, and G. G. Jones, 7, Arran Place, Ardrossan, Argyllshire. Application date, March 21, 1930.

In the fermentation of carbohydrates in presence of neutral or alkaline sulphites to produce glycerol, the residue obtained after distilling off the acetaldehyde, alcohol, and other volatile products and removing the glycerol, and which consists largely of alkali metal salts, is converted into sulphites for use again. For this purpose it is calcined, e.g., in presence of coal or other carbonaceous matter with or without chalk, and treated with sulphur dioxide, sulphurous acid, or a bisulphite.

348,789. ALUMINIUM OXALATE. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, March 24, 1930.

To obtain aluminium oxalate or basic oxalate in the solid water-soluble state, their solutions are dehydrated at temperatures above the boiling point of water at the prevailing pressure, or at lower temperatures by using a fine dispersion of the solution with or without a current of hot gas or reduced pressure. Thus a solution may be concentrated until its boiling point is 110° C. and then evaporated to dryness at 120° C., a solution of basic oxalate may be concentrated at 95° C. and then further dehydrated under reduced pressure at 90° C., or a solution previously concentrated to a syrup may be spread in thin layers and dried at 30–100° C. or sprayed into a closed vessel in countercurrent to a hot gas.

348,790. ALUMINIUM CARBOXYLATES. J. Y. Johnson. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, March 24, 1930.

Neutral or basic salts of aluminium are obtained by the action of the metal on aqueous solutions of aliphatic dicarboxylic or hydroxy-carboxylic acids or of the acid or neutral aluminium salts thereof. Alternatively, the neutral alkali metal salts of the hydroxy acids may be used for the reaction. The metal used is preferably finely divided or is activated by mercury or mercury salts. The examples relate to the preparation of neutral and basic aluminium oxalates, aluminium (with or without ammonium) tartrate and lactate, an aluminium-sodium-potassium tartrate, and an aluminium-ammonium glycolate.

348,792. PURIFYING HYDROCHLORIC ACID. Westvaco Chlorine Products, Inc., 415, Lexington Avenue, New York, Assignees of F. S. Low, Plainfield, New Jersey, U.S.A. International Convention date, January 27, 1930.

In the production of chlorine and hydrogen in an electrolytic cell, the hydrochloric acid leaving the cell is freed from chlorine by passing it through a box in a sinuous path, between baffles carried by a porous diaphragm within the box air being forced through the diaphragm to carry off the chlorine in a direction at right angles to the general direction of flow of the hydrochloric acid. The air carrying the chlorine passes to a chlorine absorption apparatus and the acid after passage downwards through a regenerating tower is pumped to a storage tank for return to the cell.

348,803. DESTRUCTIVE HYDROGENATION. Gas Light and Coke Co., R. H. Griffith, and R. N. B. D. Bruce, 84, Horseferry Road, London. Application date, March 29, 1930.

To stabilise the reaction temperature in the destructive hydrogenation of high boiling point hydrocarbons rich in open-chain compounds, an addition is made, before the reaction, of high boiling point hydrocarbons rich in closed-chain compounds. Such an addition obviates the difficulties resulting from the sudden change from an endothermic to an exothermic reaction experienced in the hydrogenation of open-chain compounds alone. Molybdenum with a promoter of silicon, boron, lithium, calcium, or phosphorus, is a suitable catalyst, with or without an addition of hydrogen sulphide to the hydrogenating gas.

348,811. DYES. W. W. Groves, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, April 3, 1930.

Diazotised 1-amino-2 : 3 : 5-trimethyl-benzenes, halogenated in the 4-position, are coupled in substance, on a substratum or on the fibre with arylides of 2 : 3-oxy-naphthoic acid free from solubilising groups. The diazo components are obtained by chlorination, bromination, or iodination of 1-amino-2 : 3 : 5-trimethylbenzene. Examples are given of the production of the dyestuffs in substance and on cotton fibre by impregnating with the arylide and developing with the diazo compound.

348,817. OLEFINES. Naamloze Vennootschap de Bataafsche Petroleum Maatschappij, 30, Carel van Bylandtlaan, The Hague. (Assignees of R. M. Deanesly, Emeryville, California, U.S.A.) International Convention date, June 5, 1929.

The separation of olefines from admixture with paraffins is effected by distilling the mixture in presence of liquid ammonia or methylamine. Processes and apparatus for fractionating a mixture of butylene, butane and ammonia are described and illustrated in detail. In the separation of highly volatile hydrocarbons, which are not readily liquefied, a high pressure scrubbing system is used with employment of ammonia as scrubbing agent and subsequent distillation of the solution of the hydrocarbons in the ammonia.

348,825. ALKALI CARBAMATES AND CARBONATES. Wintershall Akt.-Ges. (formerly Kali-Industrie Akt.-Ges.), C. T. Thorsell and A. Kristensson, 139, Hohenzollernstrasse, Cassel, Germany. International Convention date, April 16, 1929. Addition to 300,629 (see THE CHEMICAL AGE, Vol. XX, p. 54).

Crude sylvinitic salts are used as the source of potassium chloride in the process of the parent specification, and the mixture of potassium and sodium carbamates obtained is worked up as described therein to obtain the corresponding bicarbonates or carbonates, which are then separated by the known methods.

348,849. DYES. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, April 22, 1929.

Aminoanthrimidocarbazoles containing at least one acridone ring are condensed with anthraquinone derivatives containing one or more replaceable halogen atoms in a high boiling solvent, such as nitrobenzene, naphthalene, or trichlorobenzene, and in presence of a suitable catalyst, such as copper or a salt thereof, and of an acid-binding agent. Examples are given.

348,902. DYES AND INTERMEDIATES. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, August 17, 1929.

Acid nitro dyestuffs for wool are obtained by heating in alkaline solution the products obtainable by reaction of 1 mol. of a sulphonated benzene derivative containing a secondary amino group in *o*-position to each of two primary amino groups with 1 mol. of a benzene derivative carrying two nitro groups in *o*-position and one nitro group in *p*-position to a replaceable atom or group. The products give yellow-brown to violet-brown dyeings. Numerous examples are given.

348,921. AMINE SALTS OF ARSINIC ACIDS. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, June 14, 1929.

Therapeutically valuable mono- and di-salts of hydroxyethylamine with 3-acetyl-amino-4-hydroxyphenylarsinic acid are obtained by interaction of the components, e.g., in aqueous solution. The products may be isolated by crystallisation or the solutions, stabilised by addition of a little sodium sulphite, may be used.

348,866. SULPHURIC ACID. W. W. Groves, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, May 6, 1930.

For purifying sulphuric acid of higher than 60 per cent. concentration from nitric acid constituents, a solution of sulphur dioxide in water or sulphuric acid is added and a current of an indifferent gas, such as air or flue gas, is passed through the mixture at a temperature of 100-200° C.

348,889. DESTRUCTIVE HYDROGENATION. Standard Oil Development Co., Linden, New Jersey, U.S.A., Assignees of W. C. Asbury, Elizabeth, New Jersey, U.S.A. International Convention date, June 4, 1929.

Heavy oils are subjected to a two-stage hydrogenation process to obtain oils of low boiling point, the first stage being

a destructive hydrogenation in the liquid phase at relatively low temperatures, e.g., 750-925° F. (399-496° C.), and under 50-100 atmospheres pressure, whereupon the products are divided into fractions of low and intermediate boiling point, and the intermediate fractions are converted in the second stage into low boiling products rich in aromatic constituents by heating in the vapour phase at high temperatures, e.g., 850-1056° F. (454-566° C.), and the hydrogen evolved is used again in the first stage. A suitable arrangement of plant is described and illustrated.

348,944. FORMIC ACID. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, July 5, 1930.

Concentration of aqueous formic acid is effected by mixing it with formamide and a concentrated or gaseous mineral acid and heating to 60-80° C. The water is taken up in the hydrolysis of the amide. Examples relate to the use of hydrochloric and sulphuric acids. The formic acid may be separated by distillation under reduced pressure after a preliminary separation of the ammonium salt, if desired. A washer containing water or formamide may be arranged between the condenser and the suction apparatus to intercept any formic acid not retained by the condenser.

348,956. ISOQUINOLINE DERIVATIVES. G. B. Ellis, London. From E. Merck (firm of), Darmstadt, Germany. Application date, July 15, 1930.

Compounds of papaverine-like constitution which are derivatives of 1-benzyl-3-methylisoquinoline are obtained by treating acid amides, produced by interaction of phenylacetic acid or its substitution products and 1-(3¹:4¹-methylene-dioxy-or dimethoxy-phenyl)-2-aminopropane, with acid condensing agents to effect ring closure, and thereafter dehydrogenating the products by means of palladium black at 160-220° C. In one example 1-(3¹:4¹-methylenedioxyphenyl)-2-aminopropane is caused to react with homopiperonylic acid, the resulting amide is heated with phosphorus oxychloride in toluene solution and then fused with palladium black yielding 1-(3¹:4¹-methylenedioxybenzyl)-3-methyl-6:7-methylenedioxyisoquinoline. Other examples are given.

348,955. ANTOXIDANTS FOR RUBBER. Imperial Chemical Industries, Ltd., Millbank, London. International Convention date, September 17, 1929.

Products obtained by condensation of acetylene with amines are incorporated in rubber to improve its resistance to ageing. Specified amines are aniline, xylylides, *o*-and *p*-anisidines, phenetidine, naphthylamines, benzidine, tolidine, dianisidine, *m*-phenylenediamine, diaminonaphthalenes, monoethylaniline, dimethylaniline, diphenylamine, methyl-, ethyl-, propyl-, and butyl-amines, dimethyl-, diethyl-, dipropyl-, and dibutylamines, *p*-aminophenol, hydroxyaminodiphenylamine, amino- and diamino-diphenylamines, diamino-diphenylmethane, diaminodiphenylketone, amino- and diamino-diphenylethers, and diaminobenzhydrol. Cuprous chloride and mercurous chloride are suitable catalysts for the condensation.

348,988. PYRIDINE DERIVATIVES. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, October 21, 1929. Addition to 335,818 (see THE CHEMICAL AGE, Vol. XXIII, p. 531).

β -Hydroxyalkylpyridines are obtained by fusing the corresponding sulphonic acids (with the exclusion of α -picoline- β -sulphonic acid) with alkali. The starting-materials are obtainable by the process of Specification 335,817 (see THE CHEMICAL AGE, Vol. XXIII, p. 531). Examples relate to the preparation of β -hydroxy- γ -picoline and β -hydroxy- β -ethyl- α -picoline. The products give a red colour when coupled in an alkaline medium with diazotized *p*-nitraniline, the red becoming yellow on addition of acid.

Specifications Accepted with Date of Application

354,716. Vat dyestuffs, Manufacture of. A. Carpmael. (I.G. Farbenindustrie Akt.-Ges.) May 9, 1930.

354,735. Apparatus for carrying out chemical reactions with the aid of electric discharges. J. Y. Johnson. (I.G. Farbenindustrie Akt.-Ges.) February 5, 1930.

354,736. Nitrogen-oxygen compounds, Production of. Gutehoffnungshütte Oberhausen Akt.-Ges. February 6, 1929.

354,744. Magnesium alloys, Production of. C. Arnold. (Dow Chemical Co.) March 11, 1930.

354,765. Nickel-chromium alloys. General Electric Co., Ltd., and C. J. Smithells. May 12, 1930.

354,775. Purification of resinous and wax-like products. J. Y. Johnson. (I.G. Farbenindustrie Akt.-Ges.) March 7, 1930.

354,785. Refractory metals such as tungsten, Manufacture of. General Electric Co., Ltd., and C. J. Smithells. May 10, 1930.

354,794. Zinc white, Manufacture of. A. Carpmael. (I.G. Farbenindustrie Akt.-Ges.) May 14, 1930.

354,798. Oxidation of organic compounds. Imperial Chemical Industries, Ltd., and H. L. Riley. February 15, 1930.

354,816. Treating vanadium ores, and particularly vanadates of lead and of other metals, Process for. A. Gildemeister and E. Campagne. June 24, 1929.

354,818. Acid wool dyestuffs, Manufacture of. I.G. Farbenindustrie Akt.-Ges. May 14, 1930. Addition to 299,721.

354,820. Treatment of carbohydrates. H. Dreyfus. May 15, 1930.

354,824. Solutions of complex compounds containing fluorine and aluminium, Manufacture of. A. Carpmael. (I.G. Farbenindustrie Akt.-Ges.) May 15, 1930.

354,825. Compounds containing aluminium and fluorine, Manufacture of. A. Carpmael. (I.G. Farbenindustrie Akt.-Ges.) May 15, 1930.

354,826. Dyes, Manufacture of. Dr. F. M. Hamer and Ilford, Ltd. May 15, 1930.

354,840. Resinous condensation products, Manufacture of. A. Carpmael. (I.G. Farbenindustrie Akt.-Ges.) May 17, 1930.

354,943. Fast vat dyestuffs, Manufacture of. A. Carpmael. (I.G. Farbenindustrie Akt.-Ges.) July 1, 1930.

354,945. Impregnating a poisonous gas with warning gas. Soc. Française du Gaz Sanos. September 24, 1929.

354,948. Phenol or its homologues, Manufacture of. Dr. F. Raschig Ges. July 6, 1929.

354,955. Tubes for use in highly heating molten metals, liquids, vapours, and gases. F. Krupp, Akt.-Ges. July 20, 1929.

354,974. Anthraquinone vat dyes, and process of making the same. Newport Co. August 8, 1929.

354,975. Optically-active phenylpropanolmethylamines. I.G. Farbenindustrie Akt.-Ges. July 19, 1929.

354,992. Alcohols, Manufacture and production of. J. Y. Johnson. (I.G. Farbenindustrie Akt.-Ges.) July 25, 1930.

355,008. Catalytic materials, Production of. Naamlooze Vennootschap de Bataafse Petroleum Maatschappij. January 7, 1930.

355,016. Hydrogen peroxide-phosphate compounds, Process for preparing. Dr. G. Schoenberg. August 10, 1929.

355,017. N-Substituted derivatives of the pyridone series, Manufacture of. Soc. of Chemical Industry in Basle. August 10, 1929.

355,018. Separation of para-toluidine from mixtures of ortho-toluidine and para-toluidine. W. Blythe and Co., Ltd., W. H. Bentley, and B. Catlow. August 12, 1930.

355,032. Polymerised vinylnaphthalenes, and moulding-compositions, varnishes, lacquers, and the like therefrom, Manufacture of. Imperial Chemical Industries, Ltd. August 21, 1929.

355,041. Tungsten carbide. British Thomson-Houston Co., Ltd. August 29, 1929.

355,055. Preservation of soaps, fats, and fatty oils. Imperial Chemical Industries, Ltd. September 10, 1929.

355,078. Treatment of copper matte. United Verde Copper Co. September 25, 1929.

355,083. Nickel-chromium alloys. General Electric Co., Ltd., and C. J. Smithalls. September 29, 1930.

355,091. Reaction towers for treatment of liquids with gases. I.G. Farbenindustrie Akt.-Ges. October 7, 1929.

355,092. Apparatus for the oxidation of nitrites to nitrates. J. Y. Johnson (I.G. Farbenindustrie Akt.-Ges.) October 13, 1930.

355,094. Camphene, Manufacture of. Schering-Kahlbaum Akt.-Ges. October 22, 1929.

355,098. Ammonium sulphate, Method of production of. Kunstdunger Patent-Verwertungs-Akt.-Ges. November 9, 1929.

355,111. Triammonium phosphate from potassium phosphates, Production of. I.G. Farbenindustrie Akt.-Ges. November 2, 1929.

355,114. 3-Hydroxydiarylamine-5-carboxylic acids and their arylides, Manufacture of. W. W. Groves (I.G. Farbenindustrie, Akt.-Ges.) October 28, 1930.

355,139. Derivatives of higher fatty acids containing nitrogen, Manufacture of. A. Carpmael (I.G. Farbenindustrie Akt.-Ges.). November 21, 1930.

355,144. Esters of derivatives of cellulose or other carbohydrates, Manufacture of. I.G. Farbenindustrie Akt.-Ges. Addition to 301,036.

355,178. Catalytic oxidation of ammonia. Dr. N. Caro and Dr. A. R. Frank. March 3, 1930.

Beryllium Development Corporation. Recovering beryllium, etc., from silicate ore thereof. 24,129. August 27. (United States, September 17, 1930.)

Boothman, W. T., and Hampson, J. A. Cracking hydrocarbons. 24,183. August 28.

Coles, S. O. Cowper. Production of aluminium. 23,682. August 24.

Del-Iurco, C. R. Preparation of esters of high viscosity from castor oil. 24,169. August 27.

Dorr Co., Inc. Digestion of sewage sludge. 23,724. August 24. (United States, October 11, 1930.)

— Slurry filtration. 24,221. August 28. (United States, September 22, 1930.)

Dow Chemical Co. Article of manufacture, and method of making same. 23,914. August 25. (United States, December 11, 1930.)

Du Pont de Nemours and Co., E. I. Coating compositions. 24,111. August 27.

— Catalytic production of amines. 24,112. August 27. (United States, August 27, 1930.)

— Manufacture of coated fabrics. 24,230. August 28. (United States, August 28, 1930.)

Fukui, M. Manufacture of colloidal carbohydrate. 24,004. August 26. (Japan, March 2.)

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of pure sulphur. 23,748. August 24.

— Rendering illuminating gas, etc., non-poisonous. 23,749. August 24.

— Manufacture of potassium bicarbonate. 23,750. August 24.

— Removal of deposits during chemical conversions. 23,751. August 24.

— Manufacture of valuable liquid products by destructive hydrogenation. 23,752. August 24.

— Manufacture of electrodes for storage batteries. 24,354. August 29.

I.G. Farbenindustrie Akt.-Ges. Wetting-agent for mercerizing lyes. 24,383. August 29. (Germany, September 24, 1930.)

Imperial Chemical Industries, Ltd., and Whitworth, E. Manufacture of nitrocellulose propellant explosives. 23,995. August 26.

Linz, A. Production of dyestuffs. 24,243. August 28.

Llewellyn, W. B. Preparation of titanium compounds. 23,860. August 25.

Luminus Co. Distilling heavy oils. 23,765. August 24.

Metalges. Akt.-Ges. Low-temperature carbonization of fuels. 24,030. August 26. (Germany, September 11, 1930.)

Miyaguchi, T. Manufacture of colloidal carbohydrate. 24,004. August 26. (Japan, March 2.)

Mossgraber, E. Production of nitrogenous acylated carbohydrates. 23,802. August 24. (Germany, August 25, 1930.)

— Method of producing nitrogenous compositions. 24,130. August 27. (Germany, November 28, 1930.)

Naamlooze Vennootschap Nieuwe Octrooi Maatschappij. Cracking hydrocarbons. 23,739. August 24. (United States, September 9, 1930.)

Salerni, P. M. Treatment of carbonaceous materials. 23,916. August 25.

— Treatment of carbonaceous materials. 24,308. August 28.

Silica Gel Corporation. Refining, etc., hydrocarbons. 24,295. August 28. (United States, August 29, 1930.)

Soc. of Chemical Industry in Basle. Manufacture of basic ethers of aromatically substituted carbonyl compounds. 23,745. August 24. (Switzerland, August 28, 1930.)

Spence, H., and P. Spence and Sons, Ltd., Preparation of titanium compounds. 23,860. August 25.

Chemical Industry in Soviet Russia

THE gross output of the chemical industries of Soviet Russia for the year 1929-30 increased 34 per cent. in comparison with the preceding year, as shown in the statistics given below:—

	1928-29	1929-30
	Roubles	Roubles
Heavy chemicals	104,104,000	145,403,000
Coal tar products	23,168,000	27,569,000
Aniline dye industry	42,509,000	59,606,000
Paints and varnishes	53,337,000	78,323,000
Bones and by-products	16,309,000	18,524,000
Oils, cosmetics and fats	214,683,000	255,958,000
Match industry	42,535,000	57,289,000
Drugs and fine chemicals	42,202,000	63,074,000

The nominal value of one rouble equals 2s. Of the heavy chemicals, increased production was outstanding in potassium carbonate, sodium sulphate, salt cake, aluminium sulphate, copperas, sodium and potassium bichromate.

Applications for Patents

[In the case of applications for patents under the International Convention, the priority date (that is, the original application date abroad which the applicant desires shall be accorded to the patent) is given in brackets, with the name of the country of origin. Specifications of such applications are open to inspection at the Patent Office on the anniversary of the date given in brackets, whether or not they have been accepted.]

Armstrong, J. J. V., and Schelven, T. van. Manufacture of quinoline derivatives. 23,831. August 25.

Bacon, R. F. and Fairweather, H. G. C. Recovery of sulphur. 24,187, 24,304. August 28.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£17 15s. per ton d/d address U.K. in casks.
ACID CHROMIC.—11d. per lb., less 2½% d/d U.K.
ACID HYDROCHLORIC.—Spot, 3s. 9d. to 6s. carboy d/d, according to purity, strength and locality.
ACID NITRIC, 80° Tw.—Spot, £20 to £25 per ton makers' works, according to district and quality.
ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude acid, 6os. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.
AMMONIA (ANHYDROUS).—Spot, iod. per lb., d/d in cylinders.
AMMONIUM BICHROMATE.—8½d. per lb. d/d U.K., or c.i.f. export.
BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages free.
BLEACHING POWDER, 35/37%.—Spot, £7 19s. per ton d/d station in casks, special terms for contracts.
BORAX, COMMERCIAL.—Crystals, £13 10s. per ton; granulated, £12 10s. per ton; powder, £14 per ton. (Packed in 1 cwt. bags. carriage paid any station in Great Britain. Prices quoted are for one ton lots and upwards.)
CALCIUM CHLORIDE (SOLID), 70/75%.—Spot, £4 15s. to £5 5s. per ton d/d station in drums.
CHROMIUM OXIDE.—9d. to 9½d. per lb. according to quantity d/d U.K.
CHROMETAN.—Crystals, 3½d. per lb. Liquor, £18 12s. 6d. per ton d/d U.K.
COPPER SULPHATE.—£25 to £25 10s. per ton.
METHYLATED SPIRIT 61 O.P.—Industrial, 1s. 11d. to 2s. 4d. per gall.; pyridinised industrial, 2s. 1d. to 2s. 6d. per gall.; mineralised, 3s. to 3s. 4d. per gall. 64 O.P., 1d. extra in all cases. Prices according to quantity.
NICKEL SULPHATE.—£38 per ton d/d.
NICKEL AMMONIA SULPHATE.—£38 per ton d/d.
POTASH CAUSTIC.—£30 to £33 per ton.
POTASSIUM BICHROMATE CRYSTALS AND GRANULAR.—4½d. per lb. nett d/d U.K., discount according to quantity: ground ½d. per lb. extra.
POTASSIUM CHLORATE.—3½d. per lb. ex-wharf, London, in cwt. kegs.
POTASSIUM CHROMATE.—8½d. per lb. d/d U.K., or c.i.f. export.
 SALAMMONIAC.—Firsts lump, spot, £40 17s. 6d. per ton d/d address in barrels. Chloride of ammonia, £37 to £45 per ton, carr. paid.
SALT CAKE, UNGROUND.—Spot, £3 10s. per ton d/d station in bulk.
SODA ASH, 58%.—Spot, £6 per ton, f.o.r. in bags, special terms for contracts.
SODA CAUSTIC, SOLID, 76/77%.—Spot, £14 10s. per ton, d/d station.
SODA CRYSTALS.—Spot, £5 to £5 5s. per ton, d/d station or ex depot in 2-cwt. bags.
SODIUM ACETATE 97/98%.—£21 per ton.
SODIUM BICARBONATE, REFINED.—Spot, £10 10s. per ton d/d station in bags.
SODIUM BICHROMATE CRYSTALS (CAKE AND POWDER).—3½d. per lb. nett d/d U.K., discount according to quantity. Anhydrous ½d. per lb. extra.
SODIUM BISULPHITE POWDER, 60/62%.—£16 10s. per ton delivered 1-cwt. iron drums for home trade.
SODIUM CHLORATE.—2½d. per lb.
SODIUM CHROMATE.—3½d. per lb. d/d U.K., or c.i.f. export.
SODIUM NITRITE.—Spot, £19 per ton, d/d station in drums.
SODIUM PHOSPHATE.—£14 per ton, f.o.r. London, casks free.
SODIUM SILICATE, 140° Tw.—Spot, £8 5s. per ton, d/d station returnable drums.
SODIUM SULPHATE (GLAUBER SALTS).—Spot, £4 2s. 6d. per ton, d/d.
SODIUM SULPHIDE SOLID, 60/62%.—Spot, £10 5s. per ton, d/d in drums. Crystals—Spot, £8 5s. per ton, d/d in casks.
SODIUM SULPHITE, PEACRYSTALS.—Spot, £13 10s. per ton, d/d station in kegs. Commercial—Spot, £9 per ton, d/d station in bags.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—4½d. to 6½d. per lb. Crude 60's 1s. to 1s. 1d. per gall. August/December.
ACID CRESYLIC 99/100.—1s. 9d. to 1s. 10d. per gall. B.P., 3s. 6d. per gall. 97/99.—Refined, 1s. 11d. to 2s. 2d. per gall. Pale, 98%, 1s. 7d. to 1s. 8d. Dark, 1s. 4d. to 1s. 4½d.
ANTHRACENE OIL, STRAINED (GREEN OIL).—4½d. to 4½d. per gall.
BENZOLE.—Prices at works: Crude, 5½d. to 6½d. per gall.; Standard Motor, 1s. to 1s. 1d. per gall. 90%.—1s. 1d. to 1s. 2d. per gall. Pure, 1s. 4d. to 1s. 5d. per gall.
TOLUOLE.—90%, 1s. 8d. to 1s. 9d. per gall. Pure, 1s. 10d. to 1s. 11d. per gall.
XYLOL.—1s. 7d. to 1s. 8d. per gall. Pure, 1s. 10d. to 1s. 11d. per gall.
CREOSOTE.—Standard specification, for export, 5d/d. to 5½d. net per gall. f.o.b.; for Home, 3½d. per gall. d/d.

NAPHTHA.—Solvent, 90/100, 1s. 3d. per gall. Solvent, 95/160, 1s. 4d. to 1s. 5d. per gall. Solvent, 90/190, 1s. to 1s. 2d. per gall.
NAPHTHALENE.—Purified Crystals, £10 per ton.
PITCH.—Medium soft, 52s. 6d. per ton, in bulk at makers' works.
PYRIDINE.—90/140, 3s. to 3s. 3d. per gall. 90/160, 3s. 3d. to 3s. 6d. per gall. 90/180, 1s. 9d. to 2s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:—

ACID GAMMA.—Spot, 3s. 3d. per lb. 100% d/d buyer's works.
ACID H.—Spot, 2s. 3d. per lb. 100% d/d buyer's works.
ACID NAPHTHONIC.—1s. 2d. per lb. 100% d/d buyer's works.
ACID NEVILLE AND WINTHER.—Spot, 2s. 6d. per lb. 100% d/d buyer's works.
ACID SULPHANILIC.—Spot, 8½d. per lb. 100% d/d buyer's works.
ANILINE OIL.—Spot, 8d. per lb., drums extra, d/d buyer's works.
ANILINE SALTS.—Spot, 8d. per lb. d/d buyer's works, casks free.
BENZALDEHYDE.—Spot, 1s. 6d. per lb., packages extra, d/d buyer's works.
BENZIDINE BASE.—Spot, 2s. 3d. per lb. 100% d/d buyer's works.
a-CRESOL 30/31° C.—£2 6s. 5d. per cwt., in 1-ton lots.
m-CRESOL 98/100%.—2s. 9d. per lb., in ton lots.
p-CRESOL 34/5° C.—1s. 9d. per lb., in ton lots.
DICHLORANILINE.—2s. 5d. per lb.
DIMETHYLANILINE.—Spot, 1s. 6d. per lb., packages extra, d/d buyer's works.
DINITROBENZENE.—7½d. per lb.
DINITROTOLUENE.—48/50° C., 7d. per lb.; 66/68° C., 7½d. per lb.
DIPHENYLAMINE.—Spot, 1s. 8d. per lb. d/d buyer's works.
a-NAPHTHOL.—Spot, 1s. 9d. per lb. d/d buyer's works.
B-NAPHTHOL.—Spot, £65 per ton in 1 ton lots, d/d buyer's works.
a-NAPHTHYLAMINE.—Spot, 10½d. per lb. d/d buyer's works.
B-NAPHTHYLAMINE.—Spot, 2s. 9d. per lb. d/d buyer's works.
o-NITRANILINE.—5s. 11d. per lb.
m-NITRANILINE.—Spot, 2s. 6d. per lb. d/d buyer's works.
p-NITRANILINE.—Spot, 1s. 8d. per lb. d/d buyer's works.
NITROBENZENE.—Spot, 6½d. per lb., 5-cwt. lots, drums extra, d/d buyer's works.
NITRONAPHTHALENE.—8½d. per lb.
SODIUM NAPHTHIONATE.—Spot, 1s. 6d. per lb. 100% d/d buyer's works.
o-TOLUIDINE.—Spot, 9½d. per lb., drums extra, d/d buyer's works.
p-TOLUIDINE.—Spot, 1s. 6d. per lb. d/d buyer's works.
m-XYLIDINE ACETATE.—3s. 3d. per lb., 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £7 5s. to £7 10s. per ton. Grey, £12 per ton. Liquor, 9d. per gall.
ACETONE.—£63 to £65 per ton.
CHARCOAL.—£6 to £8 10s. per ton, according to grade and locality.
IRON LIQUOR.—24°/30° Tw., 10d. to 1s. 2d. per gall.
RED LIQUOR.—16° Tw., 8½d. to 10d. per gall.
WOOD CREOSOTE.—1s. 9d. per gall., unrefined.
WOOD NAPHTHA, MISCELLIE.—2s. 9d. to 2s. 11s. per gall., according to quantity. Solvent, 3s. 9d. per gall.
WOOD TAR.—£4 to £5 per ton.
BROWN SUGAR OF LEAD.—£32 per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6d. to 1s. 1d. per lb. according to quality; Crimson, 1s. 3d. to 1s. 5d. per lb., according to quality.
ARSENIC SULPHIDE, YELLOW.—1s. 5d. to 1s. 7d. per lb.
BARYTES.—£6 to £7 10s. per ton, according to quality.
CADMUM SULPHIDE.—4s. 6d. to 5s. per lb.
CARBON BISULPHIDE.—£26 to £28 per ton, according to quantity; drums extra.
CARBON BLACK.—3d. to 4d. per lb., ex wharf.
CARBON TETRACHLORIDE.—£40 to £50 per ton, according to quantity drums extra.
CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.
DIPHENYLGUANIDINE.—2s. 6d. per lb.
INDIARUBBER SUBSTITUTES, WHITE.—4d. to 5½d. per lb.; Dark, 4d. to 4½d. per lb.
LAMP BLACK.—£28 per ton.
LITHOPONE, 30%.—£18 to £20 per ton.
SULPHUR.—£9 10s. to £13 per ton.
SULPHUR CHLORIDE.—4d. to 7d. per lb., according to quality.
SULPHUR PRECIP. B.P.—£55 to £60 per ton, according to quantity.
SULPHUR PRECIP. COMMERCIAL.—£40 to £45 per ton.
VERMILION, PALE OR DEEP.—6s. 2d. to 6s. 8d. per lb.
ZINC SULPHIDE.—8d. to 11d. per lb.

Pharmaceutical and Photographic Chemicals

ACETANILIDE.—Is. 4d. to 1s. 6d. per lb.
ACID, ACETIC, PURE, 80%.—£35 5s. per ton d/d address U.K. in casks.
ACID, ACETYL SALICYLIC.—2s. 7d. to 2s. 9d. per lb., according to quantity.
ACID, BENZOIC B.P.—Is. 10d. per lb., for synthetic product. Solely ex Gum, Is. 3d. to Is. 6d. per oz.; 50-oz. lots, Is. 3d. per oz.
ACID, BORIC B.P.—Crystal, £31 per ton; powder, £32 per ton; For one-ton lots and upwards. Packed in 1-cwt. bags carriage paid any station in Great Britain.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—10½d. per lb., less 5%.
ACID, GALLIC.—2s. 11d. per lb. for pure crystal, in cwt. lots.
ACID, MOLYBDIC.—5s. 3d. per lb. in ½-cwt. lots. Packages extra. Special prices for quantities and contracts.
ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. for 28-lb. lots; Resublimed, 8s. 6d. per lb. for 28-lb. lots, d/d.
ACID, SALICYLIC, B.P. PULV.—Is. 5d. to Is. 8d. per lb. Technical.—Is. to Is. 2d. per lb.
ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.
ACID, TARTARIC.—10½d. per lb., less 5%.
AMIDOL.—7s. 6d. to 11s. 3d. per lb., according to quantity.
AMMONIUM BENZOATE.—3s. 6d. per lb.
AMMONIUM CARBONATE B.P.—£36 per ton. Powder, £39 per ton in 5-cwt. casks. Resublimated, Is. per lb.
AMMONIUM MOLYBDATE.—4s. 9d. per lb. in ½-cwt. lots. Packages extra. Special prices for quantities and contracts.
ATROPHINE SULPHATE.—7s. to 7s. 6d. per oz., according to quantity.
BARBITONE.—5s. 9d. to 6s. per lb.
BENZONAPHTHOL.—2s. 10d. per lb.
BISMUTH CARBONATE.—7s. 9d. per lb.
BISMUTH CITRATE.—8s. 7d. per lb.
BISMUTH SALICYLATE.—7s. 11d. per lb.
BISMUTH SUBNITRATE.—6s. 9d. per lb.
BISMUTH NITRATE.—Cryst. 5s. 6d. per lb.
BISMUTH OXIDE.—10s. 9d. per lb.
BISMUTH SUBCHLORIDE.—10s. 5d. per lb.
BISMUTH SUBGALLATE.—7s. 9d. per lb. Extra and reduced prices for smaller and larger quantities of all bismuth salts respectively.
BISMUTH ET AMMON LIQUOR.—Cit. B.P. in W. Qts. Is. 0½d. per lb.; 12 W. Qts. 11½d. per lb.; 36 W. Qts. 11d. per lb. Liquor Bismuth B.P. in W. Qts. Is. 2½d. per lb.; 6 W. Qts. Is. per lb.; 12 W. Qts. 10½d. per lb.; 36 W. Qts. 10d. per lb.
BORAX B.P.—Crystal, £21 10s. per ton; powder, £22 per ton; for one-ton lots and upwards. Packed in 1-cwt. bags carriage paid any station in Great Britain.
BROMIDES.—Ammonium, Is. 9d. per lb.; potassium, Is. 4½d. per lb.; granular, Is. 5d. per lb.; sodium, Is. 7d. per lb. Prices for 1-cwt. lots.
CAFFEIN, PURE.—6s. 6d. per lb.
CAFFEIN CITRAS.—5s. per lb.
CALCIUM LACTATE.—B.P., Is. 1½d. to Is. 3d. per lb., according to quantity.
CAMPHOR.—Refined flowers, 2s. 8d. to 2s. 10d. per lb., according to quantity; also special contract prices.
CHLORAL HYDRATE.—2s. 11½d. to 3s. 1½d. per lb.
CHLOROFORM.—2s. 4d. per lb.
ETHERS.—S.G. .730—Is. 1d. to Is. 2d. per lb., according to quantity; other gravities at proportionate prices.
FORMALDEHYDE, 40%.—30s. per cwt., in barrels, ex wharf.
GLUCOSE, MEDICINAL.—Is. 6d. to 2s. per lb. for large quantities.
HEXAMINE.—Is. 10d. to 2s. per lb., according to quantity.
HYDROGEN PEROXIDE (12 VOLs.).—Is. 4d. per gallon, f.o.r. makers' works, naked. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 3s. per gall.
HYDROQUINONE.—4s. 7d. per lb. in 1-lb. lots; 3s. 5½d. per lb. in cwt. lots.
HYPOPHOSPHITES.—Calcium, 2s. 11d. to 3s. 4d. per lb.; potassium, 3s. 2d. to 3s. 7d. per lb.; sodium, 3s. 1d. to 3s. 6d. per lb.; for 28-lb. lots.
IRON AMMONIUM CITRATE.—B.P., Is. 9d. per lb., for 28-lb. lots. Green, 2s. 6d. per lb., list price. U.S.P., 2s. 7d. per lb. list price.
IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity.
IRON QUININE CITRATE.—B.P., 8½d. to 8½d. per oz.
MAGNESIUM CARBONATE.—Light B.P., 36s. per cwt.
MAGNESIUM OXIDE.—Light Commercial, £62 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb.
MENTHOL.—A.B.R. recrystallised B.P., 13s. 6d. per lb. net; Synthetic, 8s. 6d. to 12s. per lb.; Synthetic detached crystals, 8s. 6d. to 9s. 9d. per lb., according to quantity; Liquid (95%), 8s. per lb.
MERCURIALS B.P.—Up to 1-cwt. lots. Red Oxide, crystals, 7s. 4d. to 7s. 5d. per lb., levig., 6s. 11d. to 7s. per lb.; Corrosive Sublimate, Lump, 5s. 10d. to 5s. 11d. per lb., Powder, 5s. 3d. to 5s. 4d. per lb.; White Precipitate, Lump, 5s. 10d. to 5s. 11d. per lb., Powder, 5s. 11d. to 6s. per lb.; Calomel, 6s. 3d. to 6s. 4d. per lb.; Yellow Oxide, 6s. 9d. to 6s. 10d. per lb.; Persulph. B.P.C., 6s. 1d. to 6s. 2d. per lb.; Sulph. nig., 6s. 5d. to 6s. 6d. per lb. Special prices for larger quantities.
METHYL SALICYLATE.—Is. 3d. to Is. 4d. per lb.
PARAFORMALDEHYDE.—Is. 6d. per lb.

PARALDEHYDE.—Is. 1d. per lb.
PHENACETIN.—3s. 9d. to 4s. 1d. per lb.
PHENOLPHTHALEIN.—5s. to 5s. 2½d. per lb.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—77s. per cwt., less 2½ per cent.
POTASSIUM CITRATE.—B.P., Is. 7d. per lb. for 28-lb. lots.
POTASSIUM FERRICYANIDE.—Is. 7½d. per lb., in 125-lb. kegs.
POTASSIUM IODIDE.—16s. 8d. to 17s. 9d. per lb., as to quantity.
POTASSIUM METABISULPHITE.—50s. per cwt. d/d London, kegs free.
POTASSIUM PERMANGANATE.—B.P. crystals, 5½d. per lb., spot.
QUININE SULPHATE.—Is. 8d. per oz. for 1,000-oz. lots.
SACCHARIN.—43s. 6d. per lb.
SALICIN.—16s. 6d. to 17s. 6d. per lb., according to quantity.
SILVER NITRATE.—10d. per oz. for 500-oz. lots, sticks, 2d. per oz. extra.
SODIUM BARBITONUM.—8s. 6d. to 9s. per lb. for 1-cwt. lots.
SODIUM BENZOATE B.P.—Is. 6d. to Is. 7½d. per lb.
SODIUM CITRATE.—B.P.C. 1911, Is. 4d. per lb. B.P.C. 1923, and U.S.P., Is. 8d. per lb. for 28-lb. lots.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 per ton, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—75s. per cwt. net. Crystals, 2s. 6d. per cwt. extra.
SODIUM SALICYLATE.—Powder, Is. 10d. to 2s. 2d. per lb. Crystal, Is. 11d. to 2s. 3d. per lb.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to Is. 2d. per lb.
SODIUM SULPHITE, ANHYDROUS.—£26 to £28 per ton, according to quantity. Delivered U.K.
STRYCHNINE, ALKALOID CRYSTAL. 2s. per oz.; hydrochloride, Is. 9½d. per oz.; nitrate, Is. 8d. per oz.; sulphate, Is. 9d. per oz., for 1,000-oz. quantities.
TATAR EMETIC, B.P.—Crystal or powder, Is. 9d. to 2s. per lb.
THYMOL.—Puriss, 6s. 1½d. to 7s. per lb., according to quantity. Natural, 12s. per lb.
ZINC STEARATE.—Is. 4d. to Is. 6d. per lb.

Perfumery Chemicals

ACETOPHENONE.—7s. per lb.
AUBEPINE (EX ANETHOL).—8s. 9d. per lb.
AMYL ACETATE.—2s. 3d. per lb.
AMYL BUTYRATE.—4s. 9d. per lb.
AMYL CINNAMIC ALDEHYDE.—8s. 6d. per lb.
AMYL SALICYLATE.—2s. 6d. per lb.
ANETHOL (M.P. 21/22° C.).—5s. per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.
BENZYL ACETATE FROM CHLORINE-FREE ALCOHOL.—Is. 3d. per lb.
BENZYL ALCOHOL FREE FROM CHLORINE.—Is. 9d. per lb.
BENZYL BENZOATE.—2s. 2d. per lb.
CINNAMIC ALDEHYDE NATURAL.—10s. 6d. per lb.
COUMARIN.—12s. per lb.
CITRONELLOL.—7s. 3d. per lb.
CITRAL.—6s. per lb.
ETHYL CINNAMATE.—6s. 9d. per lb.
ETHYL PHTHALATE.—2s. 6d. per lb.
EUGENOL.—7s. 6d. per lb.
GERANIOL.—6s. to 10s. per lb.
GERANIOL (FROM PALMAROSA).—14s. per lb.
HELiotropine.—5s. 6d. per lb.
Iso EUGENOL.—9s. per lb.
LINALOL (EX BOIS DE ROSE).—5s. 6d. per lb.
LINALYL ACETATE, EX BOIS DE ROSE.—7s. 6d. per lb. Ex Shui Oil, 7s. 6d. per lb.
METHYL ANTHRANILATE.—6s. per lb.
METHYL BENZOATE.—4s. 3d. per lb.
MUSK XYLOL.—6s. 6d. per lb.
PHENYL ETHYL ACETATE.—10s. per lb.
PHENYL ETHYL ALCOHOL.—8s. 3d. per lb.
RHODINOL.—40s. per lb.
SAFROL.—Is. 6d. per lb.
VANILLIN, EX CLOVE OIL.—14s. 6d. to 16s. 6d. per lb. Ex Guaiacol.—13s. to 15s. per lb.

Essential Oils

ANISE OIL.—2s. 6d. per lb.
BERGAMOT OIL.—8s. 6d. per lb.
BOURBON GERANIUM OIL.—17s. 6d. per lb.
CAMPFOR OIL.—White, 100s. per cwt.; Brown, 100s. per cwt.
CANANGA.—Java, 7s. per lb.
CINNAMON OIL LEAV.—4s. per oz.
CINNAMONELLA OIL.—Java, 2s. 4d. per lb., c.i.f. Pure Ceylon, 2s. per lb.
CLOVE OIL.—90/92%.—6s. per lb.
EUCALYPTUS OIL, AUSTRALIAN. B.P. 70/75%—Is. 4d. per lb.
LAVERENDER OIL.—Mont Blanc, 38/40%, 9s. per lb.
LEMON OIL.—4s. 3d. per lb.
LEMONGRASS OIL.—2s. 9d. per lb.
ORANGE, SWEET.—8s. per lb.
OTTO OF ROSE.—Anatolian, 40s. per oz.; Bulgarian, 60s. per oz.
PALMA ROSA.—8s. 9d. per lb.
PEPPERMINT.—Wayne County, 7s. 6d. per lb.; Japanese, 4s. 9d. per lb.
PETITGRAIN.—5s. 3d. per lb.
SANDALWOOD.—Mysore, 28s. 6d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, September 3, 1931.

TRADE during the current week has been steady and prices remain unchanged on the whole.

General Chemicals

ACETONE.—The demand is steady at £59 to £61 per ton according to quantity.

ACID, ACETIC.—Is in steady demand at £34 5s. to £36 5s. per ton for the technical 80%, and £1 per ton more for 80% pure.

ACID, FORMIC.—Price as last indicated; business fairly steady.

ACID, CITRIC.—In nominal request at about 10d. per lb.

ACID, LACTIC.—Has been in slightly better request at £38 per ton for 40% weight material.

ACID OXALIC.—This product is very firm at £34 per ton in casks, and £35 per ton in 1 cwt. kegs delivered buyer's address.

ACID, TARTARIC.—Remains unchanged at about 10d. to 10d. per lb., less 5%.

ALUMINA SULPHATE.—In nominal demand at last quoted figures.

ARSENIC.—A slightly better demand has been experienced for this product, and prices are fairly firm at about £19 to £19 10s. per ton for Continental makers.

CREAM OF TARTAR.—In steady demand at 76s. to 77s. per cwt.

COPPER SULPHATE.—Remains unchanged at about £18 10s. per ton with quiet demand.

FORMALDEHYDE.—In better request at about £27 per ton.

LEAD ACETATE.—Prices remain at £31 5s. per ton for white, and £30 15s. per ton for brown.

LITHOPONE.—Prices remain at £18 to £22 per ton according to grade and quantity and the demand is steady.

POTASSIUM BICHROMATE.—The English makers' prices still ruling at 4d. per lb. with usual discounts for contracts.

POTASSIUM CHLORATE.—A firm market at £28 to £32 per ton.

PERMANGANATE OF POTASH.—Continues firm at 5d. to 5d. per lb., ex warehouse London, for B.P. material.

SODIUM BICHROMATE.—Prices remain at 3d. per lb. with usual discounts for contracts.

SODIUM HYPOSULPHITE.—Photographic crystals in good demand

Nitrogen Fertilisers

Sulphate of Ammonia.—*Export.*—The market still appears to be in an unsettled condition with the price about £5 per ton, f.o.b. U.K. port in single bags. *Home.*—The low price of £5 10s. per ton delivered to farmer's nearest station in 6-ton lots has been very well received in agricultural circles, and it is understood that a large number of merchants have covered their requirements for the season at this figure.

Nitrate of Soda.—The manufacturers of this product have not yet announced any scale of prices and the amount of business transacted is very small.

Latest Oil Prices

LONDON., September 2.—**LINSEED OIL** was pressed for sale at lower prices. Spot, ex mill, £14 15s. quoted; September, £13 10s. sellers; September-December, £13 10s. sellers; January-April, £14 10s. paid and sellers; May-August, £15 10s. about value. **COTTON OIL.**—Egyptian crude, £18; refined common edible, £21; and deodorised, £23, sellers. **RAPE OIL.**—Crude extracted, £26 sellers. **TURPENTINE.**—American, spot, 47s.; and October-December, 30s. per cwt.

HULL.—**LINSEED OIL**, spot and September, closed at £14. October-December at £14 2s. 6d., January-April at £14 12s. 6d., naked. **COTTON OIL.**—Egyptian, crude, spot, £18 10s.; edible, refined, spot, £20 15s.; technical, spot, £20 10s.; deodorised, £22 15s. **PALM KERNEL OIL.**—Crude, naked, f.m.q., spot, £18 10s. **GROUNDNUT OIL.**—Crushed/extracted, spot, £24; deodorised, £28. **RAPE OIL.**—Crushed/extracted, spot, £25; refined, £27. **SOYA OIL.**—Crushed/extracted, spot, £17; deodorised, £20 10s. per ton. **COD OIL.**—17s. per cwt. **CASTOR OIL.**—Pharmacy, spot, £40s.; firsts, 35s.; second, 33s. per cwt. **TURPENTINE.**—American, spot, 40s. per cwt.

South Wales By-Products

THERE is very little change in South Wales by-product activities. Business generally is quiet and there are no prospects of any immediate improvement. Pitch has a sporadic, uncertain demand, and it is obvious that big users, especially the patent fuel makers, are not taking any chances upon long-date pitch orders. There is no change in values. Road tar continues to have a fair call round about 13s. per 40-gallon barrel delivered. Refined tars have a fair call, with values unchanged for coke oven and gasworks tar.

at about £14 5s. per ton and commercial crystals at £8 10s. per ton.

SODIUM PRUSSIATE.—In good demand at 4d. to 5d. per lb.

TARTAR EMETIC.—In quiet request at about 10d. per lb.

ZINC SULPHATE.—Trade continues fairly good for this product at £10 10s. per ton.

Coal Tar Products

THE market for coal tar products still remains inactive, with stocks still on the low side. Prices remain unaltered, with the exception of cresylic acid and naphthalenes, which are slightly lower.

MOTOR BENZOL.—Remains at 1s. 4d. to 1s. 5d. per gallon, f.o.r.

SOLVENT NAPHTHA.—Unchanged at about 1s. 1d. to 1s. 2d. per gallon, f.o.r.

HEAVY NAPHTHA.—Obtainable at 11d. to 1s. 0d. per gallon, f.o.r.

CREOSOTE OIL.—Quoted at about 3d. to 3d. per gallon, f.o.r. in the North, and at about 4d. to 4d. per gallon in London.

CRESYLCIC ACID.—Obtainable at about 1s. 6d. per gallon for the 98/100% quality, f.o.r., and at about 1s. 4d. per gallon for the dark quality 95.97%.

NAPHTHALENES.—Quoted at about £2 5s. to £2 10s. per ton for the firelighter quality, at about £2 15s. to £3 per ton for the 74/76 quality, and at about £4 per ton for the 76/78 quality.

PITCH.—Unaltered, at 45s. to 47s. 6d. per ton, f.o.b. East Coast port, for forward delivery.

The following additional prices have been received:

Carbolic Acid.—Prices of phenol are steady with a fair amount of enquiry—prices remain unchanged, 5 ton lots 5d., with druggists' quantities at 6d. in bulk packing; smaller quantities packing extra.

Aspirin.—Little more interest has been shown in this material, prices remain steady at 2s. 7d. to 2s. 9d. per lb. for usual quantities.

Methyl Salicylate.—ton lots at 1s. 3d., 5 cwt., 1s. 3d., 1 cwt., 1s. 3d., smaller quantities, 1s. 4d. per lb.

Cresylic Acid.—Steady. Pale 97/99% is 1s. 6d. to 1s. 7d., better grades 99/100% 1s. 10d. to 2s., these prices are, of course, naked at works.

Saccharin.—Steady. Quoted at 43s. 6d. per lb. nett, duty paid.

Naphthas continue to be quiet. Solvent has only a small demand, while there is scarcely any call for heavy. Creosote remains weak, but motor benzol remains a bright feature. Patent fuel and coke exports are slightly better. Patent fuel prices for export are:—19s. 9d. to 20s., ex-ship Cardiff; 19s. to 19s. 6d., ex-ship Swansea. Coke prices are:—Best foundry, 32s. 6d. to 36s. 6d.; good foundry, 22s. 6d. to 25s.; furnace, 16s. 6d. to 17s. 6d.

Scottish Coal Tar Products

SOME movement is noticeable in tar-acids, particularly the higher boiling fractions, but quotations are without alteration. Creosote oil is marked down in value, although the volume of business is quite satisfactory.

Cresylic Acid.—Enquiries are more numerous, but values are unchanged. Pale, 99/100%, 1s. 5d. to 1s. 6d. per gallon; pale, 97/99%, 1s. 3d. to 1s. 4d. per gallon; dark, 97/99%, 1s. 2d. to 1s. 3d. per gallon; high boiling, 2s. 6d. to 3s. per gallon; all f.o.r. works.

Carbolic Sixties.—Market remains dull with value nominal at 1s. 1d. to 1s. 3d. per gallon, according to water content.

Creosote Oil.—While certain grades are being quoted at easier prices, the throughput is well maintained. Specification oils, 2½d. to 3d. per gallon; washed oil, 3½d. to 3½d. per gallon; gas works ordinary, 3d. to 3d. per gallon; all ex makers' works in bulk quantities.

Coal Tar Pitch.—Forward quotations are not easily obtainable owing to uncertainty of supplies. Meantime, value may be taken at about 45s. per ton f.o.b. Glasgow for export, and about 40s. per ton at works for home trade.

Blast Furnace Pitch.—Stocks are gradually being reduced, but controlled prices are unchanged at 30s. per ton f.o.r. works for home trade, and 35s. per ton f.a.s. Glasgow for export.

Refined Coal Tar.—A steady demand exists for this product and value is not under 2½d. to 2½d. per gallon in buyers' packages ex makers' works.

Blast Furnace Tar.—Dull at 2½d. per gallon f.o.r.

Crude Naphtha.—Available supplies are on offer at 4d. to 5d. per gallon, according to quality.

Water White Products.—remain very slow. Motor benzol, 1s. 2½d. to 1s. 3d. per gallon; 90/160 solvent, 1s. 1d. to 1s. 2½d. per gallon; and 90/190 heavy solvent, 11½d. to 1s. 0d. per gallon; all ex works in buyers' rail tanks.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing this firm's independent and impartial opinions.

Glasgow, September 1, 1931.

BUSINESS has been brisk during the past week in the Scottish heavy chemical market.

Industrial Chemicals

ACETONE.—B.G.S.—£60 to £63 per ton, ex wharf, according to quantity.

ACID, ACETIC.—Prices ruling are as follows: glacial, 98/100%, £45 to £56 per ton; pure, £35 5s. per ton; technical, 80%, £34 5s. delivered in minimum lots of 1 ton.

ACID, BORIC.—Granulated commercial, £22 per ton; crystals, £22 per ton; B.P. crystals, £31 per ton; B.P. powder, £32 per ton, in 1-cwt. bags delivered Great Britain free in one-ton lots upwards.

ACID, HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. per carboy. Dearsenicated quality, 5s. per carboy, ex works, full wagon loads.

ACID, NITRIC, 80° QUALITY.—£23 per ton, ex station, full truck loads.

ACID, OXALIC.—98/100%.—On offer at 3½d. per lb., ex store. On offer from the Continent at 3½d. per lb., ex wharf.

ACID, SULPHURIC.—£3 7s. 6d. per ton, ex works, for 144% quality, £5 15s. per ton for 168%. Dearsenicated quality, 20s. per ton extra.

ACID, TARTARIC. B.P. CRYSTALS.—Quoted 11d. per lb., less 5%, ex wharf. On offer for prompt delivery from the Continent at 10½d. per lb., less 5%, ex wharf.

ALUMINA SULPHATE.—Quoted round about £8 10s. per ton, ex store

ALUM, LUMP POTASH.—Now quoted £8 10s. per ton, c.i.f. U.K. ports. Crystal meal, about 2s. 6d. per ton less.

AMMONIA ANHYDROUS.—Quoted 10½d. per lb., containers extra and returnable.

AMMONIA CARBONATE.—Lump quality quoted £36 per ton. Powdered, £38 per ton, packed in 5 cwt. casks, delivered U.K. stations or f.o.b. U.K. ports.

AMMONIA LIQUID, 80°.—Unchanged at about 2½d. to 3d. per lb., delivered, according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture quoted £21 to £22 per ton, ex station. Fine white crystals offered from the Continent at about £17 5s. per ton, c.i.f. U.K. ports.

ANTIMONY OXIDE.—Spot material obtainable at round about £26 per ton, ex wharf. On offer for shipment from China at about £23 per ton, c.i.f. U.K.

ARSENIC, WHITE POWDERED.—Quoted £23 10s. per ton, ex wharf. Spot material still on offer at £24 per ton, ex store.

BARIUM CHLORIDE.—In good demand and price about £9 10s. per ton, c.i.f. U.K. ports. For Continental materials our price would be £8 10s. per ton, f.o.b. Antwerp or Rotterdam.

BLEACHING POWDER.—British manufacturers' contract price to consumers unchanged at £6 15s. per ton, delivered in minimum 4-ton lots. Continental now offered at about the same figure.

CALCIUM CHLORIDE.—Remains unchanged. British manufacturers' price, £4 15s. to £5 5s. per ton, according to quantity and point of delivery. Continental material on offer at £4 7s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—At about £3 15s. per ton, f.o.r. works, or £4 12s. 6d. per ton, f.o.b. U.K. ports.

FORMALDEHYDE, 40%.—Now quoted £29 per ton, ex store. Continental on offer at about £27 per ton, ex wharf.

GLAUBER SALTS.—English material quoted £4 10s. per ton, ex station. Continental on offer at about £3 per ton, ex wharf.

LEAD, RED.—Price now £30 per ton, delivered buyers' works.

LEAD, WHITE.—Quoted £38 per ton, carriage paid.

LEAD ACETATE.—White crystals quoted round about £32 to £34 per ton c.i.f. U.K. ports. Brown on offer at about £1 per ton less.

MAGNESITE, GROUND CALCINED.—Quoted £9 10s. per ton, ex store.

METHYLATED SPIRIT.—Industrial quality 64 o.p. quoted 2s. per gallon, less 2½% delivered.

POTASSIUM BICHROMATE.—Quoted 4½d. per lb., delivered U.K. or c.i.f. Irish ports, with an allowance for contracts.

POTASSIUM CARBONATE.—Spot material on offer, £24 10s. per ton ex store. Offered from the Continent at £23 10s. per ton, c.i.f. U.K. ports.

POTASSIUM CHLORATE, 99½/100% POWDER.—Quoted £26 15s. per ton ex store; crystals 30s. per ton extra.

POTASSIUM NITRATE.—Refined granulated quality quoted £20 17s. 6d. per ton, c.i.f. U.K. ports. Spot material on offer at about £20 10s. per ton ex store.

POTASSIUM PERMANGANATE B.P. CRYSTALS.—Quoted 5½d. per lb., ex wharf.

POTASSIUM PRUSSIATE (YELLOW).—Spot material quoted 7d. per lb. ex store. Offered for prompt delivery from the Continent at about 6½d. per lb. ex wharf.

SODA, CAUSTIC.—Powdered 98/99%, £17 10s. per ton in drums, £18 15s. in casks. Solid 76/77%, £14 10s. per ton in drums, £14 12s. 6d. per ton for 70/72% in drums; all carriage paid buyer's station, minimum four-ton lots; for contracts 10s. per ton less.

SODIUM BICARBONATE.—Refined recrystallised, £10 10s. per ton, ex quay or station. M.W. quality 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3½d. per lb., delivered buyer's premises, with concession for contracts.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station; powdered or pea quality, 7s. 6d. per ton extra. Light soda ash, £7 13s. per ton, ex quay, minimum four-ton lots, with various reductions for contracts.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 2s. 6d. per ton, ex station. minimum four-ton lots. Pea crystals on offer at £15 per ton, ex station, minimum four-ton lots.

SODIUM NITRATE.—Price not yet fixed.

SODIUM PRUSSIATE.—Quoted 5½d. per lb., ex store. On offer at 5d. per lb., ex wharf, to come forward

SODIUM SULPHATE (SALTCAKE).—Price, 60s. per ton, ex works; 65s. per ton, delivered, for unground quality. Ground quality 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Prices for home consumption: solid 61/62%, £10 per ton; broken, 60/62%, £11 per ton; crystals 30/32%, £8 2s. 6d. per ton, delivered buyers' works on contract, minimum four-ton lots. Special prices for some consumers. Spot material 5s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 10s. per ton; rock, £9 5s. per ton; ground American, £8 10s. per ton, ex store.

ZINC CHLORIDE 98%.—British material now offered at round about £18 10s. per ton, f.o.b. U.K. ports.

ZINC SULPHATE.—Quoted £11 per ton, ex wharf.

Note.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

The Fauser Synthetic Ammonia Process

Recent Plant Developments

A RECENT report of the Montecatini Co., licensor of the Fauser-Montecatini synthetic ammonia process, states that the plants in Sweden, Japan, Germany, Poland, and Belgium continued satisfactory operations during 1930. The plants of the Dutch Government at Luterade were successfully inaugurated. The Ammoniaque Synthétique et Derives, of Brussels, a subsidiary of the Montecatini group, enlarged the plant at Willebroeck, bringing its capacity up to 20,000 metric tons of nitrogen annually. The Cie Neerlandaise de l'Azote, in which the Montecatini is heavily interested, increased its capitalisation from 150,000,000 to 265,000,000 Belgian francs. The plant of this company at Sluiskil (Netherlands) has been enlarged, and its present capacity is 150 tons of ammonia in 24 hours, equivalent to an annual production of 275,000 tons of ammonium sulphate. A plant is also now under construction at Sluiskil for the production of nitric acid and nitrochalk by the Fauser-Montecatini process. The synthetic ammonia plants of the Consolidated Smelting and Mining Co. in Canada are nearing completion, and may be expected to begin operations shortly. Building has begun on a plant in the Donez Basin (Russia) for the Soviet Government, which should be operating by the end of the year, and which will have a capacity of 100 tons of nitrogen in 24 hours. A plant in Czechoslovakia, at Moraska Ostrowa, belonging to the Ceskoslovenske Tovary and with an annual capacity of 25,000 tons of normal nitric acid on the Fauser-Montecatini process, began operations in February. The "Société Dalmatiennes" is also building a nitrogen fixation plant at Dougrat, Dalmatia. The nitric acid plant of this group on the Fauser-Montecatini process will have a capacity of 250 tons of normal nitric acid in 24 hours, equivalent to 60,000 tons of calcium nitrate annually.

New German Rustproofing Process

THE I.G. Farbenindustrie has a new process for rustproofing of iron and steel. For the time being the I.G. Farbenindustrie offers the services of a completely equipped plant to manufacturers of automobiles, bicycles, and hardware for rustproofing of parts furnished by them. Hardware and bicycle parts treated by the above process are already on the market in Germany.

Manchester Chemical Market

[FROM OUR OWN CORRESPONDENT.]

Manchester, September 3, 1931.

AFTER the seasonal dullness of the last month or two there seem now to be indications of a little more movement in the chemical market here, although, as before, the majority of transactions extend only over comparatively short periods. In the textile finishing trades there has been a rather better call for materials used in connection with artificial silk, but in the case of cotton the position leaves much to be desired. So far as prices are concerned most of the principal lines continue very steady. A notable movement this week has been a further reduction in the acetates of lead, nitrate of lead being unchanged.

Heavy Chemicals

A quietly steady business is reported in respect of saltcake, offers of which are at about £2 17s. 6d. per ton. Caustic soda keeps very firm on a contract basis of from £12 15s. to £14 per ton, according to grade, and a moderate demand is being experienced. There is not a great deal of buying interest being shown in respect of hyposulphite of soda, but values in this section are much the same as before, the photographic material being quoted at from £15 to £15 10s. per ton and the commercial at about £9 5s. Bicarbonate of soda is steady and in moderate request at £10 10s. per ton. A quiet trade is going through in the case of bichromate of soda, which is well maintained on the basis of 3½d. per lb., less 1 to 2½ per cent., according to quantity. There has been no further alteration in the price position of phosphate of soda, the dibasic quality being quoted at up to £10 10s. per ton; inquiry this week has been rather restricted. Chlorate of soda meets with a quiet demand, with offers at from £26 to £26 10s. per ton. Alkali keeps up very well at about 6d. per ton, and a fair call for the material is reported. Prussiate of soda is in moderate request and values are unchanged at from 4½d. to 5½d. per lb., according to quantity. Buying interest in sulphide of sodium is poor at the moment; the 60-65 per cent. concentrated solid quality is offering at about £9 per ton and the commercial material at £7 15s.

Among the potash products, chlorate is in rather quiet demand just now but at £27 10s. per ton offers are maintained. Permanganate of potassium is moving in limited quantities, with the B.P. quality being still at about 5½d. per lb. and the commercial grade at 5d. The tendency in the case of carbonate of potash seems still to be towards lower levels, offers ranging this week at from £23 10s. to £24 per ton. Yellow prussiate of potash is firm and in fair demand at from 6½d. to 7½d. per lb., according to quantity. There is some inquiry about for bichromate of potash which keeps steady at 4½d. per lb. Caustic potash is in moderate request and prices seem to be fairly steady at the moment at round £27 10s. per ton.

There has been little change in the position of arsenic, supplies of the British product being very scarce and prices firm at about £23 per ton, at the mines, for white powdered, Cornish makes. Sulphate of copper is not actually cheaper compared with a week ago but the present tendency seems to be in that direction; business is quiet at about £18 per ton, f.o.b. White acetate of lead is now quoted at £32 12s. 6d. per ton for less than 1 ton lots, and the brown material at £31 12s. 6d.; nitrate of lead is maintained at about £28 10s. per ton. The demand for acetate of lime is on a quiet scale but values seem to be fairly steady at the moment at about £12 per ton for the grey material and £7 10s. for the brown.

Acids and Tar Products

Citric acid is in quiet demand and prices are on the easy side still at round 10½d. per lb., tartaric acid being somewhat similarly situated at 10½d. per lb. Acetic acid is in moderate request and steady at £49 per ton for the technical glacial and £35 for the 80 per cent. commercial. Oxalic acid is unchanged at about £1 14s. 6d. per cwt., ex store.

Pitch is firm at up to 52s. 6d. per ton, f.o.b., and a fair amount of export inquiry is in circulation. Creosote oil is dull, with offers ranging from about 3d. to 4½d. per gallon, naked. Crystal carbolic acid is in quiet demand at about 5½d. per lb., f.o.b., with crude 60's at 1s. 2½d. per gallon, naked. Solvent naphtha is very quiet at from 1s. 0½d. to 1s. 1d. per gallon, naked.

Company News

UNITED TURKEY RED CO.—The directors announce that it has been decided not to pay an interim dividend on the ordinary capital for the year to December 31, 1931.

F. STEINER AND CO., LTD.—After charging £33,557 for repairs and depreciation the directors report that the loss for the year is £126,294. Adding £18,000 for debenture interest, there is a total deficit for the year of £144,294.

DRUG INCORPORATED.—The consolidated income and surplus statement for the period of six months ended June 30, 1931, of Drug Incorporated and subsidiaries shows that the earnings for the six months were \$10,656,054, equal to \$3.04 a share on the 3,501,499 shares outstanding at June 30, 1931. This compares with earnings of \$10,542,006, or \$3.01 a share, for the first six months of 1930 on a comparative basis.

UNITED INDIGO AND CHEMICAL CO., LTD.—In their annual report the directors state that after providing for depreciation of plant and machinery, bad debts, directors' remuneration, and all other charges, there remains a profit (including £15,653 brought from last year's account and £1,000 brought from Income Tax Special Reserve) of £22,144. From this sum the dividends already paid have to be deducted, leaving a balance of £14,644, which they recommend should be carried to next year's account. The annual meeting will be held on September 9, at 11 a.m., at 60, Spring Gardens, Manchester.

BUELL COMBUSTION CO. (FOREIGN).—The report for the year ended December 31, 1930, states that the status of the company has undergone material change in respect of arrangement completed with parent company, by which shareholders of the company were afforded opportunity to exchange holdings for shares in Buell Combustion Co., Ltd. Apart from Buell Combustion Co., Ltd., over 87 per cent. of shareholders took advantage of this opportunity. The auditors' report is qualified to the extent that they state that they are not satisfied with value of patent rights, etc. The directors approve this qualification, as it is not possible for the auditors or for themselves to appraise these values at the present stage of the company's development—these have been taken at cost. Amounts received from interest on investments and transfer fees totalled £367. Salaries, expenses, rent, bank interest, etc., absorbed £1,628, directors' fees £150, patent renewal fees £290, reserve for doubtful debts £300, and loss on realisation of investments £1,000. The loss for the year thus amounted to £3,001, to which is added debit balance of £2,181 brought forward, making total of £5,182 as debit of profit and loss account to be carried forward.

New Chemical Trade Marks

Applications for Registration

These lists are specially compiled for us from official sources by Gee and Co., Patent and Trade Mark Agents, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to September 26, 1931.

VULCATAc

524,476. Class 1. Chemical substances used in manufactures. British Dyestuffs Corporation, Ltd., Hexagon House, Blackley, Manchester; manufacturers.—July 21, 1931.

TRAGONOL

524,398. Class 4. Raw, or partly prepared, vegetable, animal and mineral substances used in manufactures, not included in other Classes. Tragafol Products, Ltd., The Works, Hooton, near Birkenhead; manufacturers.—July 17, 1931.

Tariff Changes

URUGUAY.—The Uruguayan Government have decided to cancel the prohibition of imports contemplated under their recent law and to confine themselves to a 50 per cent. increase in the duty upon certain classes of merchandise for one month dating from August 27. The British Consul-General at Montevideo is officially informed that this increase will not be applied to British commerce.

BROOMWADE

ROTARY COMPRESSORS & EXHAUSTERS

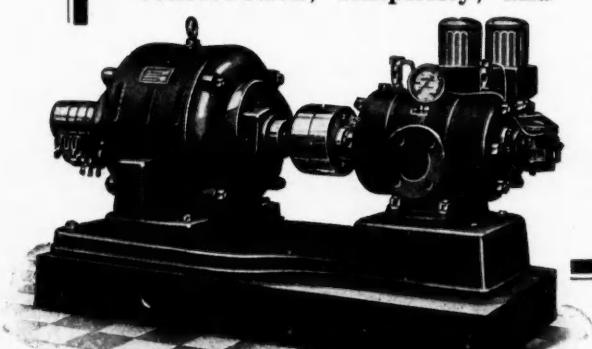
MANUFACTURED in a range of sizes from 6 to 1200 cubic feet per minute capacity, the "Broomwade" Rotary Machine is super-efficient, and its running speed and low starting torque enable it to be direct coupled to comparatively high speed squirrel-cage motors or other forms of driving units.

As a Compressor for pressures from 4 to 40 lbs. per square inch, or as an Exhauster with a vacuum reading within .23 of the barometer, this machine is pre-eminent in its class, whilst the rugged construction, simplicity, and

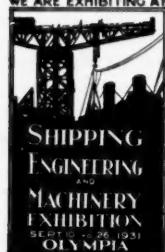
quality of materials and workmanship are cardinal features which are strikingly apparent to the Plant Engineer.

Among this range there is a machine particularly suitable for your special needs—a machine capable of giving under the most arduous conditions a full measure of efficiency and reliability, and a machine embodying the results of 30 years' exhaustive effort in the design, manufacture and installation of Air Compressing Machinery.

The name "Broomwade" has become the standard by which Air Compressing Machinery is set; that is why Engineers the world over specify "Broomwade" when rigid conditions call only for the Best Possible.



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BROOM & WADE LTD.
HIGH WYCOMBE

Modern Thermo-electric Pyrometers Moving Coil Design

DURING recent years rapid strides have been made in pyrometer work. The ideal for the chemical and allied industries is accuracy and sensitiveness combined with robust construction, so that vibration, occasional slight jolts, and other troubles characteristic of commercial conditions have no ill effect. In this connection great interest attaches to the boiler plant of the new Canadian Pacific liner, the "Empress of Britain," which is equipped throughout with thermo-electric pyrometers of the latest pattern, supplied by the Foster Instrument Co., of Letchworth.

The main boiler plant consists of 8 in. "Yarrow" water tube boilers and one "Johnson" water tube boiler, operating at 425 lb. pressure and 725° F. superheated steam temperature, with oil firing and air heaters, giving 500° F. in the air supply to the burners. For the scientific control of this plant, stated to be operated at 88 per cent. steam generation efficiency, Foster thermo-electric indicating pyrometers are fitted to give readings in the combustion gases before and after the air heaters for each of the eight "Yarrow" boilers, using direct reading flat dials. For the new "Johnson" boiler, which is to be tested in the most elaborate manner, there is, however, provided a recording thermo-electric pyrometer on the "strip" principle, that is a continuous record of the temperature before and after the air heater or any other desired points is given on a chart driven by clockwork.

The whole installation is a fine example of British craftsmanship in the field of scientific instruments, and represents the result of extensive practical experience in pyrometer work of all kinds. For the different conditions of marine operation, the flexible connections from the pyrometer tubes in the combustion gases, containing the thermo-couple or junction of dissimilar metals, to the indicating and recording instruments, are of the "heavy armoured" compensating cable" type, with special junction boxes. Each point has its own independent pyrometer tube and indicating dial, an arrangement giving superior results to connecting up a number of tubes to one central temperature-indicating device.

Prices for Chemicals in Foreign Markets

Comparison of Movements

THE following index market in respect of wholesale prices for chemical products are taken from a recent issue of *The Board of Trade Journal* :—

	Quarterly Averages.					
Average for	Average for	July-Sept.	Oct.-Dec.	Jan.-Mar.	April-June	
1929	1930	1930	1930	1931	1931	
Germany ..	126.8	125.5	125.1	123.4	120.6	118.8
Belgium....	763	750	740	713	686	656
Italy.....	384.6	360.0	353.3	343.7	327.8	323.8
United States	94.4	88.7	87.2	85.3	82.6	79.0

	BASIC FIGURES.
Germany	1913=100
Belgium.....	1914=100
Italy.....	1913=100
United States	1926=100

As measured by the changes in the index numbers, wholesale prices were lower in the June quarter, 1931, as compared with the March quarter, 1931, in each of the countries considered above. In the United States an average decrease of 5.5 per cent. was recorded. In Italy, Belgium, the United Kingdom, and France the decline amounted to 2.4, 2.3, 1.9 and 1.8 per cent. respectively; and in Germany to 1.1 per cent.

Chemical Trade Inquiries

These inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

ITALY.—An agent in Rome is desirous of securing the representation of British manufacturers of medicinal products and pharmaceutical specialities. (Ref. No. 203.)

CANADA.—A manufacturers' agent in Toronto desires to obtain the representation of a United Kingdom manufacturer of filter cloth. (Ref. No. 196.)

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

Mortgages and Charges

[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]

BROTEX CELLULOSE FIBRES, LTD., London, W.—(M., 5/9/31.) Registered August 19, £400 (not ex.), etc., further charge (supplemental to charge dated June 18, 1931), to Capt. J. A. Holder, Beaulieu, and others; charged on interest in certain secret processes, etc. *Nil. January 13, 1931.

DIVE (E. B.) AND CO., LTD., London, E., manufacturing chemists. (M., 5/9/31.) Registered August 21, Land Registry charge securing to Lloyds Bank, Ltd., £6,000 (not ex.) due or to become due from Alma Food Products, Ltd., to the bank; charged on properties in Stepney. *£3,000. February 25, 1931.

NEWCASTLE-UPON-TYNE ZINC OXIDE CO., LTD. (M., 5/9/31.) Registered August 20, debenture, to Lloyds Bank, Ltd., securing all moneys due or to become due to the bank; charged on property at Birtley (Durham), also general charge. *£8,000. October 15, 1930.

OPPENHEIMER, SON AND CO., LTD., London, S.W., wholesale chemists, etc. (M., 5/9/31.) Registered August 14, £45,000 (not ex.), Land Registry charge, to Lloyds Bank, Ltd.; charged on Handforth Laboratories, 51, Clapham Road, S.W. *£23,132 (bankers). July 31, 1930.

Satisfaction

OPPENHEIMER, SON AND CO., LTD., London, S.W., wholesale chemists, etc. (M.S., 5/9/31.) Satisfaction registered August 18, all moneys, etc., registered February 3, 1930.

London Gazette, &c.

Companies Winding Up Voluntarily

CONTINUOUS COAL CARBONISATION, LTD. (C.W.U.V., 5/9/31.) By reason of its liabilities, August 27. Mr. Herbert E. Hill, 19, Coleman Street, London, E.C.2, appointed liquidator.

THAMES TAR DISTILLERIES, LTD. (C.W.U.V., 5/9/31.) By reason of its liabilities, August 28. Mr. C. M. Duncan, 19A, Coleman Street, London, E.C.2, appointed liquidator.

New Companies Registered

E. BADER AND CO., LTD.—Registered August 29. Nominal capital, £500 in £1 shares. Manufacturers of and dealers in celluloid, cellulose, galalith, ivory, tortoise-shell, horn, vulcanite, xylonite and all imitations thereof, and any other allied products, including chemical or other ingredients, and nitrocellulose for use in connection with lacquers and varnishes, nitriferous liquids, collodion cotton and pyroxylic substances, etc. Managing director: E. Bader, "Shelvaoe," Stanford-le-Hope.

HERVEY, PEEK AND HERVEY, LTD., Ordsall Lane, Salford.—Registered August 28. Nominal capital, £30,000 in £1 shares. To acquire the business of a chemical manufacturer, lately carried on by Marjorie Hervey at Ordsall Lane, Salford, as Hervey, Peek and Hervey. Directors: H. W. Garnett, Miss Marjorie Hervey, G. Dowling.

A New Essential Oil Industry in Trinidad

A COMPANY has been recently established in Trinidad for the purpose of distilling bay and other essential oils and manufacturing bay rum and perfumed spirits. Bay rum is now imported into Trinidad mainly from British Guiana, St. Vincent, and Barbados and has a large local market. It is believed that a bay rum industry in Trinidad will now help to relieve unemployment and provide an outlet for one of the principal by-products of the sugar industry, while the collection, purchase, and distillation of the bay leaf should have a beneficial influence on agriculture.

